6-25-1986

The Future of Electronic Commerce

Assembly Committee on Utilities and Commerce

Informational Hearing
of
Assembly Utilities and Commerce Committee

THE FUTURE OF ELECTRONIC COMMERCE

IN CALIFORNIA

State Capitol, Room 447
June 25, 1986

CHAIRWOMAN: Honorable Gwen Moore

Robert Jacobson, Consultant

Yvonne Wilson, Secretary

No. 136-A

California Legislature

Assembly Committee on Utilities and Commerce

GWEN MOORE
CHAIRWOMAN
MEMBER OF THE ASSEMBLY
FORTY-NINTH DISTRICT

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October 30, 1986

To the Reader:

"The Future of Electronic Commerce in California" elicited insights and outlooks from persons actually working in the field. But a subsequent event was just as illustrative of the promises and perils of the so-called Information Age.

Because the Legislature does not yet have computer terminals in committee hearing rooms, all testimony by witnesses is recorded on audiotape for later transcription. This is usually accomplished by the committee secretary, who works long and hard to translate the sometimes inaudible recording into computer text. Eventually, an edited draft is produced and then printed via conventional offset technology.

In the case of "Electronic Commerce," the computerized text was erased from memory. How this happened, at this point, is less important than that it happened at all. Clearly, in the Information Age, the precious data commodity, which represents hopes, dreams, and values, is all too vulnerable to loss or destruction. We should keep this in mind as we build systems that may radically alter our relationship with knowledge itself.

Fortunately, each of the witnesses has supplied written testimony that is more comprehensive, if not so spontaneous, as the oral testimony he or she delivered during the hearing. I have collected these documents and am glad to present them as the record of the Utilities and Commerce Committee's June 25th hearing, "The Future of Electronic Commerce in California."

Sincerely yours,

GWEN MOORE
Chairwoman

California Legislature

Assembly Committee on Utilities and Commerce

GWEN MOORE
CHAIRWOMAN
MEMBER OF THE ASSEMBLY
FORTY-NINTH DISTRICT

State Capitol
Sacramento, California
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Informational Hearing
June 25, 1986 -- 1:30 PM
State Capitol, Room 447

THE FUTURE OF ELECTRONIC COMMERCE IN CALIFORNIA

Agenda

I. Opening Remarks: Honorable Gwen Moore, Chairwoman
II. Testimony:

Witnesses

Dr. Gary Strong State Librarian	Michael Ridenhour* Videotex Industry Assn.
Robert Mittman Institute for the Future	Lis Fleming Fleming, LTD.
Dr. Kenneth Phillips Committee of Corporate Telecommunications Users	Douglas Bulleit Integrated Communications Systems, Inc. (ICS)
Jeffrey Johnson Grassroots California, Inc.	John Coate The WELL
Rod MacKenzie Attorney at Law	Jeff Richards Pacific Bell
Matt Hogan Assembly Office of Information Services	Tom Cecil California Department of Consumer Affairs

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* Videotex displays coordinated by Michael Ridenhour, Videotex Industry Association, Northern California Chapter.

86-11-138

California Legislature

Assembly Committee on Utilities and Commerce

GWEN MOORE
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THE FUTURE OF ELECTRONIC COMMERCE IN CALIFORNIA

Introduction

Electronic commerce, the use of telecommunications and computers for the exchange of information in the commercial marketplace, is now a a multi-million dollar industry. Experts predict that, within five years, at least 10 million homes will be using various forms of electronic commerce. Many, if not most, of these homes will be in California. Even before then, corporations will be using these services for the conduct of business, spending billions of dollars annually to upgrade existing information resources.

Telecommunication and computer systems have enhanced our ability to more efficiently and effectively disseminate information. In particular, private industry has produced advanced information systems for two-way, "interactive" communications. These videotex services include:

- Information retrieval (e.g., news, weather, advertising, directories)
- Transactions (e.g., teleshopping, telebanking)
- Messaging (e.g., electronic mail, electronic bulletin boards)
- Remote computing (e.g., interactive games, financial analysis)
- Telemonitoring (e.g., home security, meter reading)

Electronic commerce has been on California state government's agenda for several years, though without much notice. The Privacy Act of 1974 established certain privacy protections for personal information stored in state files; a series of computer-crime laws did the same for private computer systems in the 1980's. In 1984, the Electronic Commerce Act (AB 2367, Moore, Ch.638, Stats.1984) established certain responsibilities for the suppliers of electronic commercial services in this state. Subsequently, the Department of Commerce contracted with the Institute for the Future to prepare a comprehensive overview of California's future industry; one chapter will deal exclusively with emergent electronic commerce.

In this session, ACA 9 (Moore) would place on the 1988 ballot a constitutional amendment granting to users of electronic commercial services the same rights of free expression and protection against unwarranted surveillance enjoyed by users of more traditional business media. The Department of General Services has had on the backburner, for three years, an experimental test of telecommuting for state workers. And, finally, this year the Assembly and probably the Senate will embark on challenging projects to automate and interconnect the Capitol and district offices of every member of the Legislature.

The dramatic growth of electronic commerce in California will catalyze new interest in this policy area. This hearing is a prospective look at the issues that will almost certainly confront California's legislators in the 1980's and 1990's.

Two Approaches to Electronic Commerce

In the United States, several corporations, including CompuServe (H & R Block, Inc.), The Source, Lockheed Dialog, and Dow Jones, have already developed sophisticated and successful electronic commercial systems. Most of these systems exist for data retrieval. The largest public access systems, CompuServe and The Source, also provide "online" catalogs from which customers can purchase goods and services. (One popular service on CompuServe is call "The Electronic Mall.") These services have 500,000 subscribers throughout the nation, about 20 percent of whom live in California. Other corporations, including AT&T, Federal Express, MCI Mail, and Western Union have created complex and popular messaging systems for their customers.

However, beyond these prototypical database and messaging systems, electronic commercial services are not yet widely available to the American public. The cost of a simple videotex terminal or a sufficiently sophisticated personal computer, with communications equipment and software, is rarely under $1,000. Additionally, telephone charges for access to these systems are still high, as are the systems' charges (as much as $200 per hour). Although some companies are experimenting with internal

business systems, videotex has yet to find its place in the American consumer market.

By way of contrast, the videotex system in France, marketed by the French telephone administration as "Intelmatique," has been extremely successful. The French were eager to turn their existing (and notoriously inadequate) telephone system into a modern telecommunications network with sophisticated capabilities. The idea behind the French system was to sell a cheap data access device as a replacement for the conventional paper telephone directory, one that was exceptionally "user friendly." The French system now has 1.1 million MINITEL videotex terminals, which average 78 minutes of use per month. It offers specialized private services on a subscription basis, free public database services, and public access information services billed on a usage basis.

The French, who would like to market their service in this country, believe that telephone companies here must embrace the universalism of the Intelmatique concept, to secure the necessary critical mass to make it a success. The French feel that customers must have access to free or low-cost terminals, just as they have access to the telephone, another information service considered revolutionary earlier in this century. Once this investment is made by the telephone companies, they believe, markets for both home and business applications will emerge.

Evolving and Operating Electronic Commercial Systems

Large, technologically oriented corporations, including IBM, RCA, Sears, CBS, Citicorp, and AT&T, have heavily invested in the development of videotex systems.

One partnership, Trintex, has been formed by IBM, Sears, and CBS. Trintex, formed in 1984, has as its main mission "to create a videotex network that will be nationwide in scope and comprehensive in its offering of two-way informational and transactional services." Trintex's goals are:

- To enhance the changing lifestyle of today's American family by providing a value-added, affordable service that is comprehensive, responsible, reliable and can save family members time and money.

- To improve marketing and distributing efficiency among commercial sponsors by delivering a large, diverse audience that can be precisely targeted for messages, products and other offerings.

A similar project, COVIDEA, is being underwritten by AT&T, Chemical Bank, Time Inc., and, pending regulatory approval, Bank of America.

Integrated Communication Systems, Inc. (ICS) is a national research consortium of large energy and telecommunications utilities, banks, and electronic entertainment firms. Among its members are BellSouth, Georgia Power, United Telecom, the Southern Company, ADT, Dow Jones, NCNB Bank, Control Data, C&S Bank, GTE, Westinghouse, and cable television firms. In California, Pacific Bell, Pacific Power & Light, and PG&E are members. ICS has created Transtext, the prototype of an "everything-on-one-wire-into-the-home" interactive information service. Transtext is currently being tested in 200 homes in Roswell, Georgia. Transtext has six main applications: TV/entertainment, transactions, information retrieval, security, communications, and home energy management. For example, Transtext allows its customers to program their energy usage to correspond to a certain "energy pricing profile" -- for instance, not running appliances during the highest-cost energy periods. Transtext interfaces to a standard telephone and television, thus linking homeowners to a variety of vendors of information services.

Locally, Pacific Bell is exploring its own system to provide electronic commercial services. Project Victoria is currently being tested in 200 homes in Danville. Project Victoria is designed to be compatible with existing customer telephone equipment. Its new technology converts all signals, including the human voice, to digital code, and then multiplexes the signals so that one pair of copper wires can carry several different data streams (including computer communications). Users can use Project Victoria services, provided by private companies at Pacific Bell's invitation, to buy tickets, view the Bay Area Teleguide, read the Wall Street Journal, check their bank balances, receive electronic mail, send telexes, and engage in real-time conversations via computer, all from the home.

Also in California, several firms provide proprietary videotex services for their own or other businesses' use. Among the best known of these is Grassroots California, which provides agricultural users with a variety of dynamic databases, including weather forecasts, commodity market information, and political intelligence. Grassroots is based on Agritex, a very successful agricultural information system developed by Saskatchewan Telecommunications and other Canadian telephone companies, based on the well-known Telidon technology.

Another California-headquartered service, The WELL (Whole Earth 'Lectronic Link), is operated out of Sausolito as a "discount" public-access information system. The WELL's low cost makes it easy for subscribing individuals to share information about local cultural and educational events, collectively compose papers and articles, and voice opinions about issues pertinent to life in the Bay Area. As such, The WELL may be a prototype for

future universal home information services organized by the people who actually use them.

The Future of Electronic Commercial Services

The integrated services digital network (ISDN) is an international standard for telecommunications networks that will carry telephone, computer, and video signals, in any combination, around the world. This standard was developed with the participation of every large American telephone company, the telephone companies of over 100 other nations, and every major manufacturer of telecommunications and computer equipment. Pacific Bell's Project Victoria is considered a functional prototype for the coming ISDN.

To implement ISDN in California will require a major reconstruction of the public telecommunications network. For example, Pacific Bell is spending $1.5 billion a year on new cable and switches, plus another $500 million annually to replace old equipment. While ISDN may make it possible to offer electronic commercial services on a nearly universal basis, it is not clear that the value of these electronic commercial services will adequately compensate ratepayers for the cost of improving the public telecommunications network.

The current Pacific Bell rate case deals directly with these questions. What public benefits are to be gained by making the network more hospitable to data services? Should only those who use the services now, those who will use them later, or all ratepayers be required to support this modernization? The Public Utilities Commission, the telephone companies, information service suppliers, and consumers all have an interest in the resolution of these issues.

Telecommuting

Closely related to the use of videotex is "telecommuting," the use of computer and telecommunications system to "telework" at home or in neighborhood "work centers." Over 50 percent of the jobs in today's workforce are information-based; many of these could be adapted to the home setting. Today, approximately 200-300 companies employ teleworkers. It is estimated that, by the year 2000, one out of four employees will be teleworkers (mainly professionals and clerical workers).

By encouraging employees to telecommute, companies such as American Express, J.C. Penney, and Control Data Corporation hope to improve efficiency by allowing employees to manage their work environment and their work. Some companies give their teleworkers free access to a computer terminal, flexible hours, and the same pay and benefits that an office worker would receive.

Public Policy Concerns

A wide array of public policy issues are concomitant with the emergence of electronic commercial services. These issues include: (1) consumer privacy and protection, (2) competition and industry structure, (3) equity of access, (4) information property rights and taxation, and (5) changes in labor-management relations and labor law. National policies in these areas have been slow to develop, despite attention focused on them by the Congressional Office of Technology Assessment, the National Academy of Sciences, and other advisory agencies. Given this lack of federal leadership, can California's legislators effectively promote the growth of electronic commerce and ensure the public good, even though the policy questions they face are still unfamiliar and somewhat exotic?

1. Consumer Privacy and Protection

Individual privacy is at risk when information is quickly exchanged among a variety of databases and their compilers. When many competitors are vying for market share, information about potential customers can be easily misused or manipulated. Additionally, through matching of computer records, individuals can be identified by their personal characteristics and tastes. This can produce the phenomenon of the "cybernetic household," in which marketing needs lead to constant, invasive monitoring of every TV show watched or product purchased by the consumer.

At a more mundane level, electronic commerce is as prone to abuse as traditional commerce. The accuracy and quality of transactional data can easily be tainted or removed, purchases can be misdelivered or not delivered, and funds can be illicitly transferred between and among customers' accounts.

2. Competition and Industry Structure

Within the growing electronic commercial industry, joint ventures and partnerships are forming among large telecommunications, financial, and industrial interests. These associations may hasten the spread of electronic commercial services, but they may also be anticompetitive in the long run. In the best circumstances, these combinations could quickly construct the necessary facilities for a vibrant, multivendor commercial environment. In the worst circumstances, these enterprises could increase industry concentration and decrease the extent of competition within electronic commercial and traditional industry sectors.

3. Equity of Access

One of the most important policy issues inherent in the growth of electronic commerce is the question of equitable access. Access to electronic commercial services, no matter how much prices may fall, may still be more costly than many Americans can afford. Those who have access to these services might then have an unfair advantage competing in the labor market, doing schoolwork, obtaining health care, and conducting business. Certain services may be marketed toward or made available to only those classes of customers with desirable demographic characteristics. For example, if banking services were conducted primarily or exclusively via home videotex systems, those without access to these systems might be forced into an entirely cash economy, with its attendant inconveniences and liabilities.

4. Information Property Rights and Taxation

Information used for the production or sale of products and services has a tangible value, even if the information itself is intangible. That is what makes it salable (and often extremely expensive). Those who own information have a very real interest in protecting it from unauthorized access or illegal distribution. In California, computer crime laws are fairly stiff, but they do not address such topics as the illicit duplication of software, the ownership of information that an employee may have developed on the job, or the pricing of information assets that may have been developed using public information (for example, information generated by a local government).

On the other hand, if information has a tangible value, it may be appropriate, for revenue purposes, to consider a tax on information similar to taxes on the other factors of production or sales of items. Current law restricts taxation to the physical medium on which information is stored, but information that is transmitted to a customer or between firms by an electronic commercial service is without physical form, yet it is still valuable. New York State (as well as some nations overseas) are considering taxing telecommunications infrastructure and even information itself. Naturally, those who would be taxed argue against these actions, claiming that they would have a deleterious effect on the economic climate of the jurisdiction and might, in the United States, violate interstate commerce laws.

5. Changes in Labor-Management Relations and Labor Law

Telecommuting and teleworking could radically alter current labor practices and the application of the laws that govern them. Teleworkers working in their homes can easily violate zoning laws restricting commercial activity. Company computer systems might become an obstacle to union activities, if they are censored or closed to workers. On the other hand, they could make labor-management relations more cooperative, if they enhance open, two-way communications between labor and management. The AFL-CIO and unions representing office workers argue that telecommuting resurrects the specter of cottage industry: teleworkers, like sweatshop workers before them, might be forced to work long hours at piecemeal rates to earn a decent living. It is true that computer technology makes it possible to monitor not only the final product of an office worker's labor but every keystroke that goes into it. But some workers appreciate the freedom from office routine that teleworking allows. And it may not be an either/or choice: conventional work and telework can exist side-by-side.

Recently, several Sacramento teleworkers sued Cal-Western/ American General Insurance Co., charging that they were hired as independent contractors but managed like other employees -- except that they were asked to sign away their fringe benefits. In order to reach their quotas, they alleged, some of these teleworkers worked as many as 14 hours a day before finally resigning from their jobs. Their case is now in superior court.

Conclusion

The impact of electronic commerce will be widely felt within the next five to ten years. AT&T estimates that the market for telephone-driven videotex will be about two million households by 1990. The reputable Frost & Sullivan market research firm forecasts a $2 billion market for videotex services by 1990; much of this new economic activity will take place in California. Some experts estimate that ten million employees will be telecommuting by 1990.

Electronic commerce may substantially affect California's economy and its quality of life. The pace of life is quickened by the electronic communication of information, perhaps uncomfortably so. The scope of decisions is also greatly extended, making for sweeping consequences, either beneficial or deleterious, for whole sectors of society. The State must construct appropriate "information policies" that acknowledge the dimensions of change being brought about by the emergence of electronic commerce in California.

Questions of interest to the Committee include:

- What are the prospects for electronic commercial services in California, in the immediate future and long-term? What will hasten or slow their appearance?

- What industry structural and regulatory policies, if any, are required to promote a viable and diverse market for electronic commerce in California?

- What other types of policies are required to provide a reliable environment for the growth and use of electronic commercial services?

- Of the issues raised in the section of this paper entitled "Policy Concerns" -- consumer privacy and protection, industry structure and competition, equity of access, information privacy rights and taxation, and changes in labor-management relations and labor law -- which deserve the immediate attention of the Legislature, and which will require its attention in the long-term?

Melinda Yee, Graduate Intern
Robert Jacobson, Principal Consultant June 4, 1986

F-PLAZ: CONNECTED

YOU'VE REACHED (818) 840-8066

*** >>FANTASY PLAZA<< ***
**** LUXURY SHOPPING ****
(C)1983
MATCHMAKER ENTERPRISES
SOFTWARE DESIGNED BY
GREGG E. COLLINS

YOUR CHAUFFEUR HELPS YOU OUT OF YOUR LIMOUSINE. YOU CAN SEE THE BEAUTIFUL PLAZA AHEAD.

ROLLING OUT THE RED CARPET...

>>FANTASY PLAZA<< IS *NOT* A GAME! WE'RE A REVOLUTIONARY CONCEPT IN HOME SHOPPING. ESTABLISHED JANUARY, 1982. BANK AND LICENSE REFERENCES AVAILABLE.

INTRODUCING DIAL-YOUR-MATCH SOFTWARE FOR COMMODORE-128! 3 MATCHING MODES, REMOTE SYSOP, 1200 BAUD, TERMINAL MODE PLUS THE NEW DYM-NET! RUSH TO FLOOR 4

TRADE IN YOUR OLD COMMODORE-64 FOR THE NEW COMMODORE-128 DIAL-YOUR-MATCH, AND GET IT FREE! DETAILS ON FLOOR 7.

GET 30% OFF DIAL-YOUR-MATCH SOFTWARE FOR APPLE, COMMODORE-64 AND VIC-20!!

YOU CAN START A BBS FOR ONLY $12.95! FLOOR 4 HAS ALL THE DETAILS YOU NEED.

MASTERCARD AND VISA HOLDERS WILL BE SURPRISED WHEN THEY TRY OUR EXCLUSIVE EASY AUTOMATIC-VERIFICATION SYSTEM!

START YOUR OWN >>FANTASY PLAZA<< FOR ONLY $50. ON FLOOR 4 WE SHOW YOU HOW.

JOIN COMPUSERVE OR DELPHI, TWO OF THE BIGGEST ON-LINE NETWORKS! FLOOR 3

DOUBLE THE CAPACITY OF YOUR DISKETTES! THIS IS NO JOKE! FLOOR 2. ONLY $5.99

35,000 TOLL-FREE 800 TELEPHONE NUMBERS
DIAL-YOUR-MATCH BBS TELEPHONE NUMBERS
976 AND TELEPHONE RECORDING NUMBERS
COMPUTER BBS NUMBERS! ALL ON FLOOR 6!

USE YOUR MODEM AND CALL (818) 842-3322
THIS IS AN EXCITING NEW MODEM CONCEPT.
MUST BE SEEN TO BE BELIEVED. CALL NOW!

WARNING! WE OCCASIONALLY COOPERATE WITH LOCAL AUTHORITIES ALLOWING THEM TO TAP OUR LINES TO APPREHEND PEOPLE WHO USE CREDIT CARDS ILLEGALLY.

THE INSIDE OF THE PLAZA IS VERY BEAUTIFUL IN THE SUMMER. THE INDOOR PONDS AND LAKES SHIMMER FROM THE FLOOD LIGHTING. YOUR STROLL ALONG THE TREE-LINED PLAZA HALLWAY BRINGS YOU UP TO THE ENORMOUS GLASS ELEVATOR. YOU ARE IMPRESSED BY THE FINE CRYSTAL IT IS CONSTRUCTED OF. NEXT TO THE ELEVATOR, A SMALL CARDBOARD SIGN DISPLAYS THE FOLLOWING:

>>FANTASY PLAZA<< MALL DIRECTORY

FLOOR 1	LOBBY-CASHIER-CUSTOMER SERVICE
	EXIT TO STREET
FLOOR 2	ASSORTED MICRO SOFTWARE
	DISKETTE ACCESSORIES
FLOOR 3	ON-LINE SERVICE STARTER KITS
	COMPUSERVE, DELPHI,
	PLAZA PARTY & NEWS LINE
FLOOR 4	DIAL-YOUR-MATCH BBS SOFTWARE
	FREE GIFTS!
	MALL SOFTWARE FOR $50
	BBS SOFTWARE FOR $24.95
	DO-IT-YOURSELF BBS BOOK
	COMMODORE-128 BBS SOFTWARE
FLOOR 5	>>FANTASY PLAZA<< CATALOG
	FISH & FIRE VIDEO TAPES
FLOOR 6	BILLIONS OF TELEPHONE NUMBERS
	700 HINTS & TIPS, BBS BOOKS
	TOLL-FREE 800 NUMBERS
	BBS TELEPHONE NUMBERS!
FLOOR 7	*FREE* MERCHANDISE
	CONSUMER AFFAIRS INFORMATION

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---------------------------------------
DEAR USER,

AS THE GENERAL MANAGER OF THIS PLAZA,
I WANT TO MAKE SURE YOU GET THE FINEST
AND BEST TREATMENT WHILE ON-LINE IN
OUR SHOPPING CENTER.  PLEASE LET US
KNOW IF YOU ARE DISPLEASED IN ANY
WAY, AS WE WILL DO OUR BEST TO MAKE
THIS THE ULTIMATE SHOPPING EXPERIENCE
FOR YOU AND YOUR FRIENDS.

                    SINCERLY YOURS,
                  DWIGHT E. WILSON
---------------------------------------

WHICH FLOOR? 6

THE GLASS ELEVATOR DOOR CLOSES

FLOOR 1...DING!

FLOOR 2...DING!

FLOOR 3...DING!

FLOOR 4...DING!

FLOOR 5...DING!

FLOOR 6...DING!

THE DOOR OPENS...

---------------------------------------
YOU'LL NEVER RUN OUT OF BBS SYSTEMS TO
CALL WITH THE NATIONAL DIRECTORY OF
BBS SYSTEMS.  YOU RECEIVE OVER 1000
MODEM PHONE NUMBERS TO BBS SYSTEMS!
---------------------------------------
SEVEN-HUNDRED IDEAS, HINTS, AND TIPS.
INCLUDED FOR *FREE* IS 70 MONEY MAKING
REPORTS -- IN THE '700 IDEAS' SHOP...
---------------------------------------
WE'VE GOT A BOOK SHOWING YOU HOW TO
CREATE YOUR OWN BBS ON A COMMODORE-64,
APPLE, OR TRS-80 COMPUTER! ONLY $12.95
---------------------------------------
YOU GET ALL KINDS OF MODEM PHONE
NUMBERS IN OUR FAVORITE ALL-TIME BEST
SELLING PRODUCT!  WE'VE SOLD HUNDREDS
```



```
OF COPIES!  THIS IS THE BOOK FOR YOU!
IT'S IN THE MODEM # BOOK STORE!!
---------------------------------------

YOU ADMIRE A EXTRAORDINARY WOMAN NAME
JO' ACROSS THE HALL.

-> MAP OF FLOOR 6 <-

++++++++++++++++++++++
+     HOLY    FOR     +
+    BIBLE    RENT    +
+++++++++    +++++++++
+      FOR    FOR     +
+     RENT    RENT    +
+++++++++    +++++++++
+      BBS    700 TIPS+
+     BOOK    & IDEAS +
+++++++++    +++++++++
+MTCHMKER     976     +
+ NUMBERS    NUMBERS  +
+++++++++    +++++++++
+    VOICE   1000-BBS+
+ NUMBERS    NUMBERS  +
+++++++++    +++++++++
+ MODEM #    TOLLFREE+
+     BOOK    800NUMS +
+++++++++    +++++++++

H)ELP L)EFT R)IGHT F)ORWARD B)ACKWARD
M)AP T)RANSFER TO ANOTHER FLOOR

:F

   VOICE    1000-BBS
 NUMBERS X NUMBERS

YOU ARE AT THE 'X' IN THE HALL

H)ELP L)EFT R)IGHT F)ORWARD B)ACKWARD
M)AP T)RANSFER TO ANOTHER FLOOR

:F

MTCHMKER    976
 NUMBERS X NUMBERS

YOU ARE AT THE 'X' IN THE HALL

H)ELP L)EFT R)IGHT F)ORWARD B)ACKWARD
M)AP T)RANSFER TO ANOTHER FLOOR
```

:R

YOU'VE ENTERED 976 NUMBERS

A HAPPY TUNE BEGINS TO PLAY ON THE PLAZA SPEAKER SYSTEM. THE SONG WAS SPECIALLY PRODUCED BY THE PLAZA SISTERS, BRIGIT, MARY JO, STACEY, AND SARAH. PLEASE SING ALONG.
(TUNE OF 'PLEASE MR. POSTMAN')

STOP! MR. POSTMAN
LOOK AND SEE
IF THERE'S A PACKAGE
FROM THE PLAZA FOR ME

ORDERING BY MODEM
WAS NOT VERY HARD
AND THEY ACCEPTED
MY MASTERCARD....

THE ELECTRONIC CRYSTAL DOORS OPEN AT THE SOUND OF YOUR FOOTSTEPS....

A FANTASY PLAZA SALES CLERK GREETS YOU.

NEVER LEAVE HOME AGAIN!

1. 916 NUMBERS
2. EXIT

1

1. 976 VOICE TELPHONE NUMBER REPORT
PRICE: $2.00

PACIFIC BELL RECENTLY DECIDED TO OFFER VOICE TELEPHONE ENTERTAINMENT SERVICES THAT *ANYONE* CAN CALL! PACIFIC BELL HAS SIGNED UP MANY VENDORS TO OFFER THESE INNOVATE PHONE SERVICES TO YOU. WHEN YOU CALL A 976 NUMBER, YOUR PHONE BILL IS CHARGED AUTOMATICALLY. PACIFIC BELL SHARES PROFITS WITH THE VENDOR. IT'S INCREDIBLE WHAT YOU GET WHEN YOU CALL THESE SERVICES. FOR EXAMPLE, ONE SERVICE ALLOWS YOU TO TOUCH-TONE IN THE NAME OF A COMPANY, AND YOU ARE GIVEN AN INSTANT STOCK QUOTE! ONE OF THE OTHER PHONE NUMBERS ALLOWS

YOU HEAR NEWS ON YOUR FAVORITE ROCK GROUPS. THE CONSUMER REPORTS NUMBER LETS YOU USE YOUR TOUCH TONE TO SELECT INFORMATION ON A NUMBER OF PRODUCTS THAT HAVE BEEN REVIEWED.

THE PROBLEM WITH THIS AMAZING SERVICE IS --NOBODY KNOWS ABOUT IT! THINK FOR JUST A MOMENT: HOW DO YOU KNOW WHAT THE TELEPHONE NUMBERS ARE? PACIFIC BELL RELYS ON THE VENDORS TO ADVERISE BUT SOME CAN'T AFFORD IT. FANTASY PLAZA HAS COME TO YOUR RESCUE! WE'VE DONE ALL THE RESEARCH AND COME UP WITH A LIST OF MOST EVERY 976 NUMBER IN THE LOS ANGELES 213 AREA CODE.

ENJOY THE BENEFITS OF:
- DAILY UPDATES ON MAJOR SOAP OPERAS
- SPORTS INFORMATION
- TELEPHONE MYSTERY LINES
- PRESIDENTIAL OPINION POLLS
- DIET BY PHONE
- STOCK QUOTATION SERVICE
- MICHAEL JACKSON LINE
- AND WAY TOO MANY MORE TO LIST HERE

ORDER THIS LIST OF 976 NUMBERS TODAY!

PRESS 1 TO PURCHASE ITEM
(R)ELIST (N)EXT ITEM M)ENU

1

976 VOICE TELPHONE NUMBER REPORT
$2.00

DO YOU WISH TO PURCHASE THIS ITEM? Y

PRICE OF ITEM
$2.00

OK? Y

TOTAL PURCHASES: $2.00
SHIPPING CHARGE: $0.80

GRAND TOTAL: $2.80

WHEN YOU HAVE COMPLETED YOUR JOURNEY THROUGH >>FANTASY PLAZA<< YOU WILL

```
BE ABLE TO LEAVE YOUR NAME AND ADDRESS
AND ARRANGE PAYMENT. YOU'LL ALSO BE
ABLE TO ERASE ANY OF YOUR PURCHASES.

THANK YOU!!!

WOULD YOU LIKE TO ORDER AN ADDITIONAL
976 VOICE TELPHONE NUMBER REPORT? N

1. 976 VOICE TELPHONE NUMBER REPORT
2. EXIT THIS STORE

I'D LIKE INFORMATION ON ITEM NUMBER: 2

THE FANTASY PLAZA SALES CLERK THANKS YOU
FOR SHOPPING AT 976 NUMBERS
PLEASE COME AGAIN SOON

H)ELP L)EFT R)IGHT F)ORWARD B)ACKWARD
M)AP T)RANSFER TO ANOTHER FLOOR

: I

ELEVATOR: WHICH FLOOR? 7

THE GLASS ELEVATOR DOOR CLOSES

FLOOR 7...DING!

THE DOOR OPENS...

----------------------------------------
COMMODORE-128 DIAL-YOUR-MATCH IS HERE!
CURRENT DIAL-YOUR-MATCH SYSOPS GET A
BIG 50% OFF, BUT *ANYBODY* CAN GET THE
SOFTWARE FREE BY TRADING IN THEIR OLD
COMMODORE-64. C128 DYM HAS THE DETAILS
----------------------------------------
STOP IN THE 'LATEST NEWS' SHOP FOR
THE BBS-PRESS NEWS-NETWORK SERVICE.
----------------------------------------
WE CAN SHOW YOU HOW TO GET SAMPLES OF
MERCHANDISE AND MAGAZINES, FREE!!
----------------------------------------
MORE BOOKS ABOUT GETTING FREE GIFTS!!
THEY ARE ON FLOOR 4 WAY IN THE BACK!!
----------------------------------------

BOB, YOU ARE A LUCKY SHOPPER!
```



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-> MAP OF FLOOR 7 <-
++++++++++++++++++++
+CONSUMER   FOR     +
+ AFFAIRS   RENT    +
+++++++++   +++++++++
+  LATEST   PC      +
+   NEWS!   PURSUIT +
+++++++++   +++++++++
+     FOR   FOR     +
+    RENT   RENT    +
+++++++++   +++++++++
+     FOR   COMMODOR+
+    RENT   PRICES  +
+++++++++   +++++++++
+     FOR   C-128   +
+    RENT   DYM     +
+++++++++   +++++++++
+1001FREE   FREE    +
+ SAMPLES X MAGZINES+
+++++++++   +++++++++

H)ELP L)EFT R)IGHT F)ORWARD B)ACKWARD
M)AP T)RANSFER TO ANOTHER FLOOR

: E

     FOR   C-128
    RENT X DYM

YOU ARE AT THE 'X' IN THE HALL

H)ELP L)EFT R)IGHT F)ORWARD B)ACKWARD
M)AP T)RANSFER TO ANOTHER FLOOR

: E

     FOR   COMMODOR
    RENT X PRICES

YOU ARE AT THE 'X' IN THE HALL

H)ELP L)EFT R)IGHT F)ORWARD B)ACKWARD
M)AP T)RANSFER TO ANOTHER FLOOR

: E

     FOR   FOR
    RENT X RENT

YOU ARE AT THE 'X' IN THE HALL
```

H)ELP L)EFT R)IGHT F)ORWARD B)ACKWARD
M)AP T)RANSFER TO ANOTHER FLOOR

: E

LATEST PC
NEWS! X PURSUIT

YOU ARE AT THE 'X' IN THE HALL

H)ELP L)EFT R)IGHT F)ORWARD B)ACKWARD
M)AP T)RANSFER TO ANOTHER FLOOR

: E

CONSUMER FOR
AFFAIRS X RENT

YOU ARE AT THE 'X' IN THE HALL

H)ELP L)EFT R)IGHT F)ORWARD B)ACKWARD
M)AP T)RANSFER TO ANOTHER FLOOR

: L

YOU'VE ENTERED CONSUMER AFFAIRS

MILLIONS (YES, MILLIONS) OF YOUR MOST FAVORITE MUSIC STARS' VOICES BEGIN SINGING ON THE PLAZA LOUDSPEAKER SYSTEM. THE SONG IS SO NICE, YOU WANT TO SING ALONG. SO HERE ARE THE WORDS. HUM ALONG NOW...

TO BE SUNG TO THE TUNE OF:

"WE ARE THE WORLD"

WE ARE THE ONE
WHERE YOU SHOP BY MODEM
WE ARE ALWAYS HERE
WHILE YOU ARE THERE

SO LETS START SHOPPIN'
THERE'S A CHOICE YOU MADE IT
WE'VE MADE A CHANGE
IN YOUR WHOLE LIFE
THE MODEM IS FUN AND YOU KNOW

THAT'S WHAT I LIKE!

THE ELECTRONIC CRYSTAL DOORS OPEN AT THE SOUND OF YOUR FOOTSTEPS....

A YOUNG URBAN PROFESSIONAL GREETS YOU.

CONSUMER AFFAIRS INFORMATION.

1. CONSUMER AFFAIRS INFORMATION
2. EXIT THIS STORE

I'D LIKE INFORMATION ON ITEM NUMBER: 1

1. CONSUMER AFFAIRS INFORMATION

IN ACCORDANCE WITH CALIFORNIA CIVIL CODE SECTIONS 1789-1789.8 WE WOULD LIKE TO DISCLOSE THE FOLLOWING INFORMATION TO OUR CUSTOMERS:

A. PROVIDER OF THIS SERVICE:
>>FANTASY PLAZA<<
P.O. BOX 6055
BURBANK, CA 91510
(818) 840-8211 RECORDING
(818) 840-8066 MODEM

B. THE CHARGES TO THE CONSUMER ARE CLEARLY STATED WHEN THE PURCHASE IS MADE AND AGAIN WHEN THE METHOD OF PAYMENT IS SELECTED. CHARGES INCLUDE SHIPPING AND APPLICABLE TAXES. USERS OF THE PLAZA PARTY LINE ARE BILLED A FIXED MONTHLY FEE UNTIL THEY GIVE US WRITTEN NOTICE TO CANCEL THEIR ACCOUNT. CURRENT PARTY LINE MONTHLY FEE IS $7 - MODEM: (818) 842-3322

C. ANY CONSUMER CAN RESOLVE HIS OR HER COMPLAINT BY LEAVING A MESSAGE ON FLOOR 1 IN THE CUSTOMER SERVICE DEPT. BE SURE TO LEAVE YOUR NAME & ADDRESS. WE WILL RESPOND BY MAIL. OR, WRITE TO THE ADDRESS ABOVE.

IF WE DO NOT SOLVE A PROBLEM TO
YOUR SATISFACTION, WRITE TO:

DEPARTMENT OF CONSUMER AFFAIRS
COMPLAINT ASSISTANCE UNIT
ROOM 501, 1202 N STREET
SACRAMENTO, CA 95813
PHONE: (916) 445-0660

(R)ELIST (N)EXT ITEM M)ENU

M

CONSUMER AFFAIRS INFORMATION.

1. CONSUMER AFFAIRS INFORMATION
2. EXIT THIS STORE

I'D LIKE INFORMATION ON ITEM NUMBER: 2

THE YOUNG URBAN PROFESSIONAL THANKS YOU
FOR SHOPPING AT CONSUMER AFFAIRS
PLEASE COME AGAIN SOON

BOB, YOU ARE A LUCKY SHOPPER!

H)ELP L)EFT R)IGHT F)ORWARD B)ACKWARD
M)AP T)RANSFER TO ANOTHER FLOOR

: I

ELEVATOR: WHICH FLOOR?1

THE GLASS ELEVATOR DOOR CLOSES

FLOOR 6...DING!

FLOOR 5...DING!

FLOOR 4...DING!

FLOOR 3...DING!

FLOOR 2...DING!

FLOOR 1...DING!

THE DOOR OPENS...

LOBBY - GROUND FLOOR

A PLAZA MANAGERIAL STAFF MEMBER ASKS YO
WHICH YOU'D LIKE TO DO:

1. LIST MY PURCHASES
   ****
2. * MARY JO, THE PLAZA CASHIER *
   ****
3. CANCEL SOME OF MY PURCHASES
4. I'D LIKE TO SHOP SOME MORE
5. EXIT AND CUSTOMER SERVICE

PLEASE MAKE A SELECTION

2

MARY JO NEEDS TO KNOW THE FOLLOWING:

FULL NAME
*ROBERT JACOBSON

STREET ADDRESS:
*STATE CAPITOL, ROOM 2117

CITY, STATE, ZIP:
*SACRAMENTO, CA 95814

ROBERT JACOBSON
STATE CAPITOL, ROOM 2117
SACRAMENTO, CA 95814

IS THIS CORRECT? Y

TELEPHONE NUMBER:
*916-445-4246

TOTAL PURCHASES: $2.00
SHIPPING CHARGE: $0.80
SALES TAX: $0.13
GRAND TOTAL: $2.93

METHOD OF PAYMENT:

1) VISA (AUTO-VERIFY SUBSYSTEM)
2) MASTERCARD (AUTO-VERIFY SUBSYSTEM)
3) MAIL US A CHECK OR MONEY ORDER
4) UPS COD SERVICE
5) HELP! PLEASE EXPLAIN

1

ENTER YOUR CREDIT CARD NUMBER:
9999 9999 9999 9999

EXPIRATION DATE
?03/99

CORRECT? Y

TO PROCESS YOUR ORDER, WE *MUST* HAVE THE NAME, CITY, AND STATE OF THE BANK THAT ISSUED YOUR CREDIT CARD.

NAME OF BANK: SUNNY SAVINGS & LOAN

CITY, STATE OF BANK: SACRAMENTO, CA

THANK YOU

YOUR ORDER NUMBER IS 78345.

PLEASE ALLOW THREE WEEKS FOR DELIVERY.

1. LIST MY PURCHASES
   ****
2. * MARY JO, THE PLAZA CASHIER *
   ****
3. CANCEL SOME OF MY PURCHASES
4. I'D LIKE TO SHOP SOME MORE
5. EXIT AND CUSTOMER SERVICE

PLEASE MAKE A SELECTION

5

ARE YOU SURE YOU WANT TO LEAVE? Y

YOU NOTICE A SHELF CONTAINING SOME ITEMS NEXT TO THE CASHIER.

WOULD YOU LIKE A DIAL-YOUR-MATCH LIST: OVER 75 MODEM NUMBERS FOR ONLY $1.00 ?

WOULD YOU LIKE A COPY OF "HOOKING-IN," THE BEST BBS DIRECTORY FOR $10.00 ? N

ONE MOMENT, PLEASE.

IF YOU DID NOT MAKE A PURCHASE TODAY,

PLEASE ORDER SOMETIME SOON. WE ACCEPT VISA, MASTERCARD, CHECKS, MONEY ORDERS, OR WE WILL SHIP COD.

HOP ON THE BANDWAGON! *YOU* CAN RUN A DIAL-YOUR-MATCH COMPUTER BULLETIN BOARD ON YOUR APPLE, VIC-20, C-64 OR C-128! THE SOFTWARE IS ON FLOOR 4. 25% OFF!

PLEASE CALL BACK SOON. THERE IS NO OBLIGATION TO PURCHASE ANYTHING, AND YOU MAY STAY ON AS LONG AS YOU LIKE. WE HAVE NO TIME LIMITS OR CHARGES.

DIAL-YOUR-MATCH FOR THE COMMODORE-128 OFFERS CROSS-COUNTRY NETWORKING! TRY IT OUT BY MODEM AT 1-818-842-6900

THE PLAZA'S PARTY LINE -- A MULTI-USER EXPERIENCE INVOLVING THE SIMULTANEOUS CONNECTION OF MULTIPLE MICROMPUTER USERS. EXPERIENCE THE NEW TECHNOLOGY! PLAZA'S MODEM PARTY LINE (818)842-3322

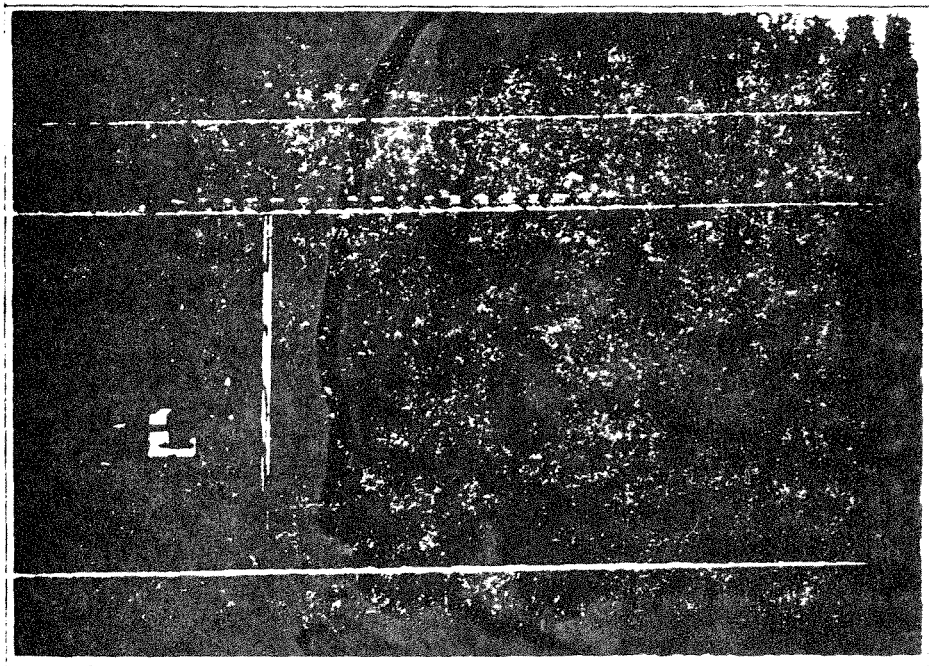
HELLO, I'M BRIGIT, YOUR CUSTOMER SERVICE REPRESENTATIVE. IF YOU'D LIKE, LEAVE A MESSAGE TO LET ME KNOW WHERE YOU HEARD ABOUT >>FANTASY PLAZA<<.

WOULD YOU LIKE TO LEAVE ME A MESSAGE? N

YOUR CHAUFFEUR HELPS YOU BACK INTO YOUR LIMOUSINE. >>FANTASY PLAZA<< AWAITS YOUR NEXT FUN FILLED VISIT.

WHY THE FRENCH ARE IN LOVE WITH VIDEOTEX

THE GOVERNMENT GIVES FREE TERMINALS TO HOUSEHOLDS, AND THAT'S MAKING INFORMATION SERVICE A BIG BUSINESS



A QUIET NIGHT AT THE TERMINAL: FOR $8 AN HOUR, USERS ALL OVER FRANCE CAN CHAT

Two years ago, François Lagarde, a young French doctor bored with medicine, helped to start an electronic information service for physicians and their patients. Today, Lagarde claims the service—started on a shoestring—is earning $80,000 a month before taxes on revenues of $135,000, mainly from people who use it to exchange short, often provocative, personal messages.

Lagarde is only one of hundreds of entrepreneurs riding a videotex craze that the French call *Le Phenomene Minitel*. In the U.S., West Germany, and Japan, home videotex has languished, primarily because consumers just aren't buying the costly terminals that are required. In France, where Minitel, the videotex network operated by the government telecommunications authority, Direction Général des Télécommunications, gives most of the equipment away, electronic information has exploded. "The difference between what's happening in France and everywhere else in the world is startling," says New York videotex consultant Michael Conniff.

Minitel, France's five-year-old system, handles 15 million calls per month over DGT's phone system, and traffic grew fourfold last year. Half the calls are to DGT's electronic telephone directory—which was what the authority intended the free terminals to be used for in the first place. But about 30% are to services run by entrepreneurs such as Lagarde. A further 20% of the calls are generated by companies that use the system mainly for business.

'NOBODY NEEDS IT.' Minitel's success is largely the result of an unorthodox philosophy of videotex: "Nobody really needs it, and nobody wants to pay for it," says Georges Nahon, chief executive of Intelmatique, the company set up by DGT to market Minitel. The French reasoned that people would use videotex for two purposes: to chat and to get quick answers to specific questions. So they kept the system very simple and cheap—no color graphics, no access to huge data bases. The no-frills Minitel terminals, which are made by outside suppliers, cost about $165 each, compared with $650 for terminals in the U.S. DGT has spent an estimated $666 million for new switching equipment and the 1.1 million terminals it has given to telephone sub-

(1E

scribers. By 1990 the agency plans to have 30% of France's 23 million phone lines equipped.

DGT is betting that the increased phone traffic will recover the terminals' cost in four years. Then each terminal should generate profit for the rest of its estimated 10-year life. To make sure of the terminals' durability, each one is bashed with a mallet on the assembly line.

DIAL-A-CATERER. The surge of entrepreneurial activity—the key to Minitel's success—was no accident. DGT commonly gives nearly two-thirds of its fee—about $5 an hour per customer—to the service provider. The result: Businesses have been scrambling furiously to cash in. The estimated number of services has tripled in a year, to more than 1,900.

Customers can dial everything from a Parisian caterer that delivers gourmet meals to psychiatrists who let patients take psychological tests over the system. But the most popular and lucrative services are those—such as Lagarde's—that allow people to chat electronically.

With just $13,000 of his savings as capital, Lagarde and two friends—an MBA and a medical student—spent several months developing software. In February, 1984, they launched Serveur Medical. "Our success was insane," Lagarde says. "All the patients started leaving messages for other patients." Then the central computer—a tiny micro—got overloaded and burned up.

The partners quickly recovered from the fire. Today they have about $360,000 invested in their system, which runs on a bigger computer that they paid for in cash from their profits.

Most of France's major newspapers have launched services that combine chatting, electronic mail, and news. Funitel, a service that combines chatting with computerized games, is one of the hottest startups. Launched in March, it already handles 180,000 hours of calls a month and has earned back the $1.9 million invested in it. This year, Funitel is predicting a 38% pretax profit margin on sales of $10.7 million.

FOREIGN IMITATORS. Minitel is for serious business customers, too. Major companies are finding Minitel a powerful tool. At the French subsidiary of Corning Glass Works, for example, some 40 salesmen use Minitel terminals to take orders for ovenware and to query the company's central computer about what's in stock. They bring along the 10-lb. terminals on sales calls and plug them into customers' phone systems. Corning employees even use Minitel terminals from home to check that the computers controlling production at the company's plant in Châteauroux are running smoothly.

The gains for business can be startling. Until two years ago, Cetelem, France's biggest consumer finance company, approved customer credit over the phone to retailers. With Minitel, 9,000 retailers can type credit information into terminals, and 85% of the applications are approved in three minutes. The completed application is printed out at the store, ready for the customer's signature. The result: Cetelem claims that its market share for credit checks in France has jumped from 27% to 30%.

> Minitel now handles 15 million calls a month, and traffic grew fourfold last year

Such success hasn't gone unnoticed outside of France. Honeywell Inc., for one, has bought 2,500 terminals, mainly to resell to U. S. companies as part of a business-to-business videotex system. But chances are slim that any U. S. company will put up the money for a French-style videotex system. The likeliest candidates, analysts say, are telephone operating companies looking to increase their phone traffic. Minitel has boosted French phone use by 10%. But so far, none of the regional Bell operating companies has made a move because, says consultant Conniff, "it requires a leap of faith that they can give away the terminals for free and still make a profit."

The next challenge for Minitel will be to generate more substantive business applications. Observers warn that the chatting services could be only a fad. Already, worried providers are considering adding more sophisticated fare. If their fears prove warranted, Minitel's growth could slow. But there's at least one sign that France's videotex market is here to stay: The verb *minitelliser*—to communicate over a Minitel terminal—is already creeping into the French language.

By Thane Peterson in Paris, with bureau reports

ALL OVER FRANCE IT'S *VIVE L'AMOUR* VIA COMPUTER

It's midmorning on a workday in Paris. We're sitting in front of a terminal provided by Minitel, the state-operated videotex network. The "chat service," called Ami 83, that we're plugged into functions largely as a kind of electronic singles bar—and it's one of dozens of services that have the whole country shooting the breeze anonymously. On the 9-in. screen is a list of names ranging from the innocent ("Clémentine") to the provocative ("Tender Spanker"). Next to each name is a number you can use to send a short message. Marie Jo Malait, BUSINESS WEEK's Paris office manager, is being besieged by messages and is furiously typing responses.

"Beep." A note from "Looking for Sexual Adventure." The sender has four days of vacation and asks if she is interested in a rendezvous that will leave her with "good memories."

"H *ou* F?" she replies, code for "are you a man or woman?" He's a man.

"Beep." "Tender Spanker" wants a rendezvous, too. "Beep." "Beep." "Beep." Many of the messages are from people at work.

CIRCUIT OVERLOAD. Several companies have gotten wise and banned the Minitel number from their phone systems. Others are likely to follow. So far, Minitel hasn't noticed. It's getting overloaded, and response time is slow. Still, within an hour, Marie Jo has six offers to meet men in person and two phone numbers. Toward noon, names begin to drop from the list. People are starting to leave for lunch.

"La convivialité" is largely what's driving Minitel's success. By dialing an eight-digit number and typing a short access code, you can communicate with people all over France for about $8 an hour. If you get bored, you can switch to computerized games or read the latest headlines, updated continually by France's largest newspapers.

"Dating" is only part of Minitel's appeal. Most of the conversation is amiable chatting using an elaborate shorthand of abbreviations and code words. "H ch F" means *"homme cherche femme,"* i.e., "man looking for woman." Often, you are given a choice of "rooms" where six or eight people converse, everyone reading everyone else's messages. When they tire of one service, a whole group may switch.

We're using a different service now. "Cobra," who is at work and says he has papers to sign, chastises Marie Jo for responding too slowly. "Push the send button before and after typing a message," he instructs.

"I know that," she snaps.

"Well," he responds, "then you must be typing with your feet."

By Thane Peterson in Paris

Richard Cowdry

by John Edwards

Do you think videotex offers little more than a chat on CB, a quick scan of the latest news headlines, and a visit to your favorite online forum? Then consider the following:

• In Battle Creek, Mich., residents have access to a free, advertiser-supported information service that offers free access, at-home shopping and a variety of community-oriented information databases.

• In Wood Lake, Va., a new community is being planned around videotex. In addition to a backyard, garage and modern kitchen, home buyers also receive a Radio Shack Color Computer and modem, allowing users to tie into a community information network.

• In Columbus, Ohio, arts groups, cultural organizations, and human and social service agencies are using a city-wide videotex system for low-cost, 24-hour-a-day data processing services.

• A major northeastern state is planning a videotex system that will provide its residents with free up-to-date information on state departments and services. One day, it may even allow users to register their cars, apply for a hunting permit, or file a consumer complaint by

computer.

What all of these projects share is the concept of a "wired community." Localities nationwide are exploring the potential and power of community videotex systems. As a community videotex system user in Virginia comments, "It's a modern day combination of the local newspaper and grocery store bulletin board, and its possibilities for the future are exciting."

Riding the third wave

Before the end of this decade, in homes and apartments across the United States, computer terminals will be as commonplace as cable television, says futurist Alvin Toffler. According to Toffler's much-acclaimed book, *The Third Wave*, computers and terminals will make it possible for millions of Americans to work and shop at home. A computerized nation, he tells us, will be able to conduct nearly all of its business at home, with substantial savings in commuting, overhead, energy and frazzled nerves.

But before this prediction can become reality, a way must be established to link America's computer users into a network. To an extent, this problem has already been solved, thanks to such nationwide information services as CompuServe, The Source and Dow Jones News/Retrieval Service. But, according to most telecomputing experts, national videotex services supply only a partial solution. Before the promise of videotex can be completely fulfilled, local services must come online to provide computer owners with a selection of community-oriented services. Just as the three major television networks serve the requirements of a national audience while individual local stations cater to community needs, regional videotex systems must provide the local services interstate videotex systems are unable to supply.

Another expert who thinks such systems will come online within the very near future is Gary Arlen, president of Arlen Communications, a Washington-based videotex consulting company and newsletter publisher. "By the middle of 1987, at the latest, residents of each of the nation's 25 largest cities will be able to access comprehensive community videotex systems," says Arlen.

"Most of these systems will be operated by banks or newspapers, since these are the organizations best suited to offer local videotex services. Banks can offer users access to a variety of financial services while newspapers have the capability to generate and electronically publish news and other information. We also can expect to see cooperative ventures launched between these two institutions," he says. "There's a big change coming, and when it hits things are going to be very interesting."

Community Bulletin Boards

Most of us already have access to a type of community videotex in the form of local computer bulletin boards. These primarily non-profit systems, operated by community-spirited individuals, provide a host of services, including electronic messages, swap and shops, program databases and, in many instances, community news.

BBSes have been a home computing fixture since the late 1970s. The first such system went online on February 16, 1978, when two Chicago-area computer buffs, Ward Christensen and Randy Suess, got the idea of linking people together by computer. Their system, which used home-brewed hardware and programs, was a literal overnight sensation, capturing the attention of both dedicated hackers and novice home computer users alike. Today, at least 1,500 BBSes exist nationwide. So many, in fact, that nobody knows just exactly how many are up and running on any particular day.

Neil Shapiro, author of the *Small Computer Connection*, a guidebook for BBS and information service users, compares BBSes to broadsides, the predecessors of today's newspapers. Shapiro, who is also the forum administrator of CompuServe's Micronet Apple Users' Group says, "Published, for the most part, in people's homes or in small printing shops, these leaflets carried every kind of thinking — from revolutionary maxims to religious canons — into the hands of the people.

Today's answer to the historical broadside is the computerized bulletin board service. Some are filled with messages of a purely personal nature, others carry much in the way of programming information, some are political — they are on the leading edge of the new information explosion. As such, they are interesting, both as phenomena and as a source of unique telecommunicating."

But while local BBSes can be informative and fun, the limited resources of these operations prevent the addition of such sophisticated community-oriented features as at-home shopping and banking, bill-paying and extensive research facilities. And since most BBSes are operated off relatively low-cost personal computers, without any special add-on devices, they also are hampered by a limited storage capacity, unsophisticated software, and an inability to handle more than a single caller at any given time.

Conquering these problems requires lots of money, a commodity most BBS managers find in short supply. Therefore, building on the current base of BBS users, private industry is beginning to take the first steps toward constructing a nationwide network of community videotex systems.

Battle Creek's new serial

Battle Creek, Mich., (1980 population, 35,724) is perhaps best known for its food products. Located in the state's south central region, the city was settled in 1831 and incorporated in 1850. It gained prominence when W. K. Kellog and C. W. Post set up factories in the late 19th century for the manufacture of ready-to-eat cereals. With the addition of a Ralston Purina plant some years later, it became, and remains today, the world's breakfast cereal capital.

But Battle Creek residents may be thinking more about electronic serial (as in RS-232C asynchronous interfaces) these days than the city's traditional snap, crackle and pop products. For in this no-nonsense, blue-collar city, a unique experiment is unfolding that may set the pattern for community videotex systems across the country.

"Our goal is simple, to bring Battle Creek residents a top-notch, community-oriented videotex system," says Don Bowles, president of Information Distributors Inc. His company has just launched a community videotex operation that brings users a variety of sophisticated services while retaining a unique degree of local flavor. Included on the system are a variety of communications applications (including multiple bulletin boards, electronic mail, conferencing and a suggestion box), online shopping, news from the Associated Press and 24-hour NOAA weather reports. Best of all, like a computer bulletin board, access is free, costing users

nothing more than a local telephone call.

"We want to provide our users with the local services the national networks can't provide," Bowles says. "We use many local information providers and get most of our financial support from Battle Creek advertisers."

The Battle Creek system is based on Scratch Pad, a software/hardware package sold by The Shuttle Corp. of Redmond, Wash. Using an ordinary IBM PC as the system's base, Scratch Pad's hardware consists of a plug-in central processor unit containing two 68000 chips, four synchronous/asynchronous serial interfaces, and a QuadModem card that lets the PC handle up to four simultaneous callers.

Also provided is 1 megabyte of random-access memory, a 10-megabyte hard-disk drive, two TeleVideo terminals and a Mannesmann Tally MT180L dot-matrix printer. Scratch Pad's software includes a controller program that handles text creation, accounting, system monitoring, operator permission control and remote data file uploading. An applications package includes automatic system start-up, log on, security code change, help file, limit log-on attempts and terminal interface features.

Michael Darland, Shuttle's president, claims that videotex start-up prices are rapidly falling and are now within the range of small- to medium-sized businesses and larger companies that are looking to test the world of computer communication. He contests a recently published claim by an IBM official who put the start-up costs of a videotex system at between $500,000 and $1 million per year. "Horseback estimates like these create the impression that videotex is an arena for the billion-dollar giants, and that everyone should be prepared to pay dearly when the giants finally make videotex available to the marketplace."

Marcia Ellis, a Shuttle spokesman, says her company is convinced Scratch Pad systems will soon be springing up around the country. "It's just a matter of time before banks and other local businesses begin competing with each other in providing videotex services — it's bound to happen. And I don't think it's a question of whether your town will have a community videotex system, but choosing which of the systems in your area you want to use regularly."

No home is complete without a computer and a way to obtain electronic information

Carol Thomas

Community videotex in suburbia

At first glance, Wood Lake, Va., looks like any other suburban housing development. A drive through the town, which is located on the outskirts of Richmond, shows the usual signs of Yuppie affluence — neatly manicured lawns, earnest joggers and driveways dotted with Volvos, BMWs and an occasional Honda. By all accounts, it's Anytown, USA.

But after going inside a few of the homes, you realize that something is quite extraordinary. For inside each of the community's residences is a Radio Shack Color Computer and modem. Either Wood Lake's residents are very devoted Tandy customers or something interesting is afoot.

According to Carol Thomas, a Wood Lake representative, the community's residents like their Radio Shack computers, but they like what the units can do for them even more. Thomas claims the reason for including computers in every house sold lies in the development's goal of providing buyers with an overall superior living environment. "These days," she notes, "no home is complete without a computer and a way to obtain electronic information. We've come to that point."

While Radio Shack sells the community its computers, CompuServe supplies the online services. What users receive when they activate their modems and dial into the Richmond CompuServe node is an online forum that's specifically tailored to Wood Lake residents. The forum provides an automatic menu with emergency numbers, a neighborhood bulletin board and news of various community events. Users also have access to the rest of the CompuServe system, including news and information services, at-home shopping, electronic mail, special interest groups and the CB Simulator. Like the rest of us, Wood Lake users are billed for their online use.

"So far, the response has been overwhelmingly favorable," says Thomas. "When we demonstrate the computer and its applications to potential buyers, many are unaware that such a system is even possible. Most are surprised at the low cost and fall in love with the concept on the spot. It's a great selling tool."

But Thomas is also careful not to place too much emphasis on the computer's importance. "People find computers useful but not completely essential," she says. "A computer is not a matter of life or death. You first buy a home to fit your various living requirements — its location, design, and proximity to schools and health care facilities are all more important than a computer. But later, after you've lived with a computer for a while, you realize how useful it can be. When you move, it is a good time to learn about computers. You're in the mood to change your life, and you also have a great need to learn about your new environment," she says.

A CIVIC lesson

While community videotex is most often aimed at individuals, the concept can also be applied to groups of people, such as clubs, charities, companies and public-service organizations.

For example, CompuServe markets Interchange, a private videotex system allowing individual businesses to organize, maintain and disseminate a wide spectrum of information. Interchange is currently being used by more than 100 firms, ranging from computer equipment manufacturers to fast-food outlets. The system is custom-tailored for each company, allowing firms to include the features they require. (For a detailed look at Interchange, see "Interchange: Changing How Companies Communicate," page 14, *Online Today*, October 1984.)

For non-profit organizations, CompuServe, in cooperation with the Columbus Center of Science and Industry (COSI) and more than a dozen other companies, is sponsoring CIVIC (Columbus Information Via Computer), a low-cost data processing facility

for social and human service agencies, arts groups and cultural organizations in Central Ohio. CIVIC provides computer resources and services through a central computer system housed at COSI headquarters.

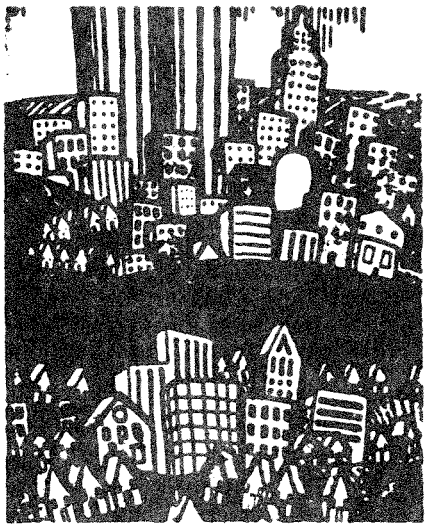
CIVIC facilities consist of two Digital Equipment Corp. DECSYSTEM 2020 mainframe computers, seven DEC Rainbow personal computers, 20 DECmate I models and four DEC VT100s. The equipment, worth nearly a half-million dollars, was donated by Digital and CompuServe to CIVIC and enables users to have at their command far more data processing power than could be purchased by the groups individually. Users have the option of working either at CIVIC's offices or at a remote site by using the service's dial-up capability.

CIVIC offers a wide range of services that can be customized to fit each user's individual needs. Currently, the system provides membership/client tracking, selective search capabilities, a mailing list/label generator, customized letter writing, fund raising support, contribution tracking and a community calendar. Future plans include a full-function funds accounting system (including general ledger, accounts receivable and accounts payable options) word processing capabilities, interactive spreadsheet analysis, and an electronic mail system that will allow CIVIC users to communicate via computer.

CIVIC uses a sliding price scale that charges users according to their database size and number of services used. Fees range from about $25 per month for smaller groups to over $500 monthly for larger organizations with extensive databases and sophisticated data processing requirements.

Dale Abrams, director of CIVIC, says "Our goal is to provide low-cost computer services to arts and human service organizations in Central Ohio. To our knowledge, no other community is supporting nonprofit organizations in this way. We feel that our success in sharing computer services will become a national model for other cities."

Other CIVIC users agree with Abrams. Judi Stillwell, president of the Junior League of Columbus, says "CIVIC is one of the best things to come along in years. Voluntary organizations, by nature, live a hand-to-mouth existence. Anything that comes along to help us — like CIVIC — is going to be welcomed. I think it's going to set a trend." Representatives of other CIVIC members agree that the program is an excellent concept that should quickly spread nationwide.



Videotex has an exciting and unlimited future. I think someday we'll ask how we ever lived without it.

Mario Cuomo

CIVIC is managed by a policy board consisting of the representatives of the Greater Columbus Arts Council, The United Way, the Franklin County Mental Health Board, the Metropolitan Human Services Commission, the Columbus Junior League and the Center of Science and Industry. Three corporate members also sit on the board.

New York expands the scope

So far, the systems we've looked at have been limited in scope, serving, at most, only a few thousand people. But plans are in the works to expand the concept of community videotex to wider levels, serving tens of millions of people living in entire states and regions.

A pioneer in this field is the state of New York. Late last year, the state's Urban Development Corp. announced its intention to provide government information and services through personal computers in homes and offices. Objectives of the UDC project, according to a corporation spokesman, will be to provide better delivery of state services to the public and to boost New York's position as a videotex industry leader.

The system, which is as yet unnamed, will be constructed in three phases. In the first phase, a test stage, five state agencies will provide online information to 50 public-access terminals, 50 business computer users and 50 home computer users. In the project's second phase, scheduled for later this year, 15 agencies will provide data while 40 more public terminals will be added and the number of business and home users doubled.

Based on the results of the first two phases, the UDC will design a fully operational system for all state residents. That system, some observers predict, will eventually provide users with a host of interactive services, including such applications as computerized car registrations, online driver training seminars and electronic mail services that citizens will be able to use to directly contact government agencies. The first version of this system is scheduled to be ready by early 1988.

David Simons, a member of the UDC's high-technology council and the videotex system's chief designer, thinks the project has an almost limitless potential. "This is the way of the future for state and local governments," he says. "Government has an obligation to deliver to its citizens services in the most timely and convenient way possible. This system will do that. Videotex also provides us with the opportunity to provide information and services in a very cost-efficient manner."

Simons also feels the project can offer a service privately-operated online systems cannot match. "Private videotex service companies are naturally interested in making a profit and have no interest in carrying the services this system will. After all, The Source and CompuServe are not going to carry a service on their national systems that's only of interest to New Yorkers," he says.

Another enthusiastic supporter of the project, and videotex in general, is New York Governor Mario Cuomo. "I'm proud that New York is the first state to initiate such a venture. I hope it will help our citizens feel more in-touch with their government, provide them with improved service, and establish New York as the videotex capital of America," he says.

"Videotex has an exciting and unlimited future," says Cuomo. "I think someday we'll all ask how we could ever live without it."

John Edwards is a contributing editor of Online Today. *His User ID number is 70007,412.*

Retailing without stores

Will telecommunication and related technologies transform shopping?

Larry J. Rosenberg and Elizabeth C. Hirschman

Will stores become extinct in American retailing? This article argues that the answer is yes—or, at least, yes for great areas of retailing. Telecommunication will make it possible to order merchandise from the home; delivery systems will take the place of pickups by customers; banks and other financial organizations will handle money transfers. But technological possibility is only part of the story. Growing numbers of Americans appear to be interested in the time-saving convenience and breadth of choice that can be offered by telecommunication shopping, to say nothing of the fuel economies that would be made possible. Of course, the authors recognize, there are still important issues to be resolved, some of them subject to considerable controversy. It is probable, therefore, that this article, a sequel to "The Next Revolution of the Retailing Wheel," by Malcolm P. McNair and Eleanor G. May (HBR September-October 1978), will itself be followed by more analyses in future issues.

Mr. Rosenberg is associate professor of marketing, Schools of Business, New York University, where he has taught since 1969. An active member of the American Marketing Association, he is the author of the textbook *Marketing* (Prentice-Hall, 1977) and of more than 60 articles on marketing in various journals. In addition, he is well-known as a lecturer on marketing. Ms. Hirschman is assistant professor in the department of marketing at NYU and associate director of the Institute of Retail Management. In past years she taught at the University of Pittsburgh and Georgia State University. For several years she served as market research manager for Rich's Department Stores, and she also worked in advertising and sales promotion at the J.C. Penney Company.

A revolution is under way in the store-dominated world of retailing. The instigators are nonstore retailers who are appearing in new forms, proliferating in numbers, and gaining market share from store-based retailers. Although accurate sales figures for this nonstore growth are hard to come by, one source estimates that nonstore annual sales are expanding from three to five times faster than those of traditional store outlets.[1] Here are some tangible examples of the rise of nonstore retailing:

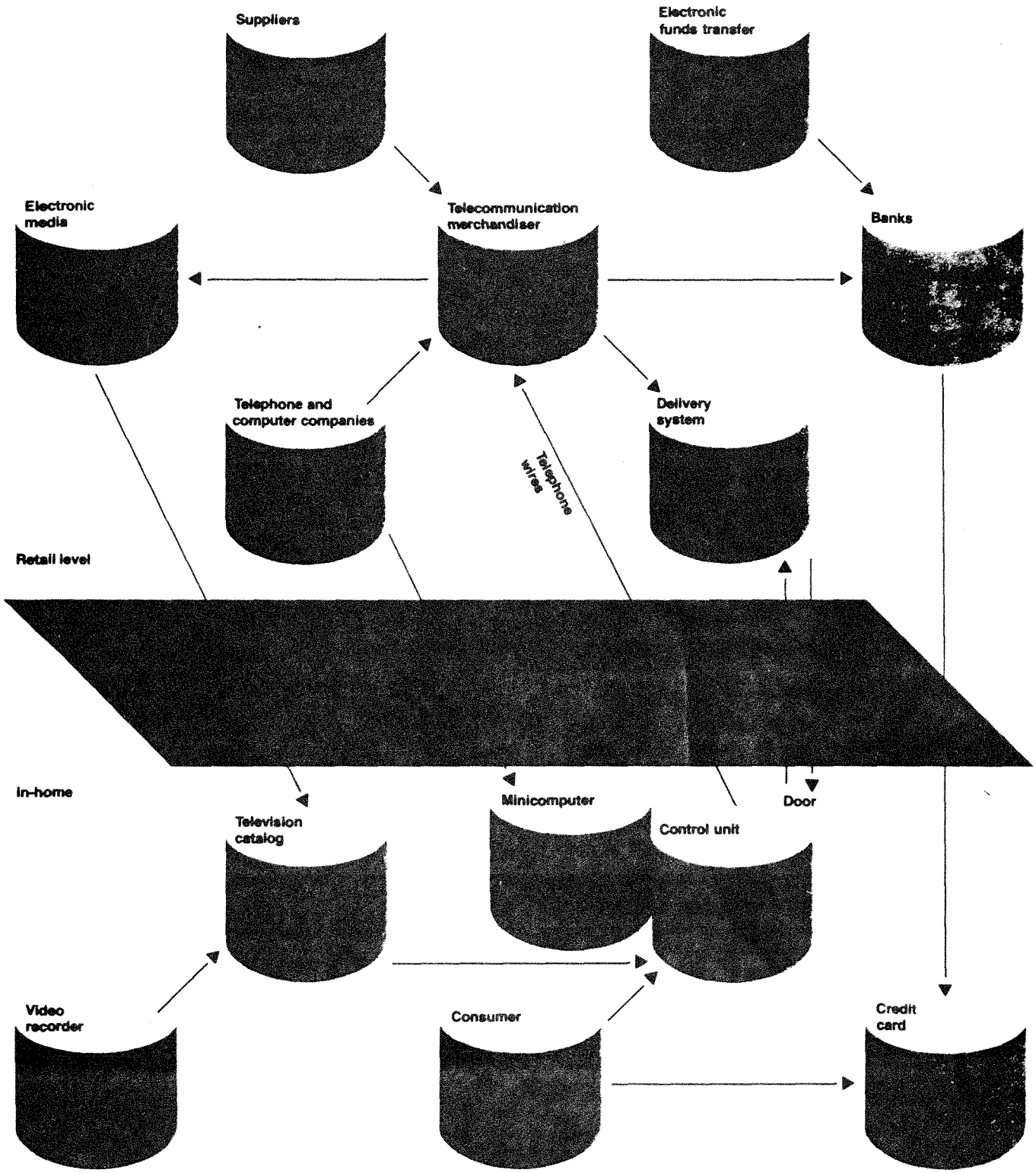
- ☐ The increasing volume of telephone- and mail-generated orders received by traditional store retailers such as Bloomingdale's, J.C. Penney, and Sears, Roebuck & Co.
- ☐ The experimental use of interactive, two-way cable TV as a means of ordering merchandise; the Qube division of Warner Communications is one of the experimenters.
- ☐ The expanding selection of merchandise offerings made to credit card customers by VISA, MasterCard, and American Express.
- ☐ The increased popularity of in-flight shopping catalogs of major airline companies.
- ☐ The success of televised promotional offerings for records and tapes of popular music "not available in any store."

We expect this trend toward nonstore retailing to accelerate rapidly with the development of telecommunication retail systems. Descriptions of how such a system may work have been offered by several experts.[2] Our version is depicted in *Exhibit I.*

1. William R. Davidson and Alice Rodgers, "Nonstore Retailing: Its Importance to and Impact on Merchandise Suppliers," *The Growth of Nonstore Retailing* (New York: New York University, Institute of Retail Management, 1979).

2. See, for example, Alton F. Doody and William R. Davidson, "Next Revolution in Retailing" (*Thinking Ahead*), HBR May-June 1967, p. 4.

Exhibit I
"Shopping" at home



Consumers with accounts at the telecommunication merchandiser will shop at home for a variety of products and services. Using an in-home video display catalog, they will order products from a participating retailer. When the order is received on its computer, this retailer will assemble the goods from a fully automated warehouse. Simultaneously, funds will be transferred from the customer's to the retailer's bank account. Customers will choose between picking up the order at a nearby distribution point or having it delivered to their door. There will be no fee for picking up the order. However, there may be a delivery charge of approximately $5. The charge will depend on the amount of the order and delivery time requirements (whether the next day at the company's convenience or at a confirmed time when the customer is at home).

The rise of telecommunication merchandising will add yet another option to the already diverse retail scene. People will continue to shop in different ways for different goods and services. Some consumers who are pressed for time will use telecommunication for staple goods, especially groceries. Others will turn to it for expensive specialty items, adding to the volume of today's mail- and phone-order business for such items.

In other words, we expect consumers to choose retail combinations along an entire spectrum, with some continuing to shop mostly at stores, some using both mail order and stores, some combining telecommunication shopping and store shopping, and some shopping almost exclusively by telecommunication systems. On this spectrum, the mass or density will move steadily toward the telecommunication end, though never becoming exclusively concentrated at that end.

Some observers believe that telecommunication merchandising could have profound effects on the structure of retailing. However, beyond sketching in some implications for retail competition, they have made few projections concerning the potential impact of telecommunication on retailing. Our purpose is to analyze this impact. First, we will discuss why telecommunication retailing is virtually a certainty—with only its period of implementation subject to conjecture. Second, we will show why this emerging retail system calls into question the very notion of retailing as we think of it today. We suggest that a new concept—what might be called the "offering system"—will take the place of retailing. Finally, we will make some predictions concerning competition and customers.

Seeds of change

When consumers and the technology are ready, the experts agree, entrepreneurs will launch telecommunication merchandising in various cities across the nation. The readiness of consumers is a key question. Will enough of them ever desire this new shopping experience and accept the novel technology that such systems involve? Actually, there is evidence already that a sufficient base of consumers is emerging to support telecommunication merchandising. Developments like the following are relevant:

- ☐ Increased emphasis on consumer self-identity, on developing and maintaining individuality in goods and services (leads to a desire to consider more items than a store can display).
- ☐ A higher proportion of women who are entering the work force (they have less time to shop).
- ☐ Desire for increased leisure time to further self-development and creative expression (means less time to go from store to store).
- ☐ Heightened consumer demand for specialty products and services (they are often hard to get in most shopping centers).
- ☐ Increasingly rapid consumer acceptance of technically complex items such as videotape recorders, home computers, and debit cards for automated teller machines (consumers have had more experience using them).
- ☐ The popularity among consumers of such recent nonstore innovations as pay-by-phone, special-interest mail-order catalogs, and televised direct marketing (people are becoming psychologically prepared for new forms of shopping).

Each of these trends indicates consumers' willingness to change. The people who give the trends impetus will form the core of the demand for telecommunication shopping. They will be attracted by the greater diversity of merchandise than shopping centers can offer, as well as the smaller investment of time required.

Not everyone will be a prospect for telecommunication shopping in its early stages. The prospects will likely be average or above in educational attainment, and they will come somewhat disproportionately from the professional and managerial strata. This is because a certain minimum level of technical sophistication and income will be required to operate a telecommunication ordering system. Furthermore, such individuals are most likely to feel the need for such a service and to perceive its usefulness.

Technological advances

Concurrent with the sociocultural trends is the expansion of technological capability in retailing. This technology will play a central role in shaping retail competition, especially for mass-merchandised items. Mechanisms now exist for distributing almost any product directly from the point of production to the point of consumption. Severe problems remain to be solved, but they are not nearly so great as the problems that have already been solved.

Traditionally, stores served as the primary distributors for retail products because consumers were accustomed to purchasing there, few acceptable alternatives existed, and the value of consumers' money exceeded the value of their time. Nonstore retailing was hindered because of inadequate systems for merchandise display, payment transfer, and purchase delivery.

However, these impediments to the growth of telecommunication shopping appear to be rapidly diminishing—and just at the time when increased energy costs are giving Americans an incentive to cut down on trips to retail centers. In various stages of development are several new methods of choosing, buying, and obtaining merchandise. The methods include specialty catalogs, catalog showrooms, electronic funds-transfer systems, interactive in-home television linkages, and electronic "mail" delivery. Significant as they are, though, these methods make up only part of the picture.

Conceptual leap

Telecommunication shopping is more than technological paraphernalia enabling revisions of buying habits. It represents a great leap beyond the conventional concept of retailing.

Retailing basically consists of different types of institutions engaging in transactions with consumers. But over the years, perspectives of retailing have shifted in response to new conditions in distribution. Three major concepts are compared in *Exhibit II.*

The initial concept of *conventional retailing* entailed a channel of independent participants with retailers sandwiched between suppliers (producers and one or more levels of wholesalers) and consumers. Store-based retailing dominated, except for truck (or wagon) deliveries and mail-order merchandising.

While conventional retailing still abounds, since the late 1940s it has been gradually eclipsed by the *vertical marketing system.* This notion has viewed the distribution system participants as an interdependent set. Either retailers or suppliers take on the coordinator role—whether through corporate, contractual, or administered means—making decisions for the system and influencing its members. The store is still the scene of purchasing.

On the surface, the telecommunication merchandiser, however innovative, resembles someone who might be in the vertical marketing system. But this is not the case. The telecommunication merchandiser is part of a system of creating and distributing a total product-service offering to subscribing consumers. Such a system differs in kind as well as degree from the familiar vertical marketing system. We call the new system an *offering system* because of its different emphasis.

Unique features

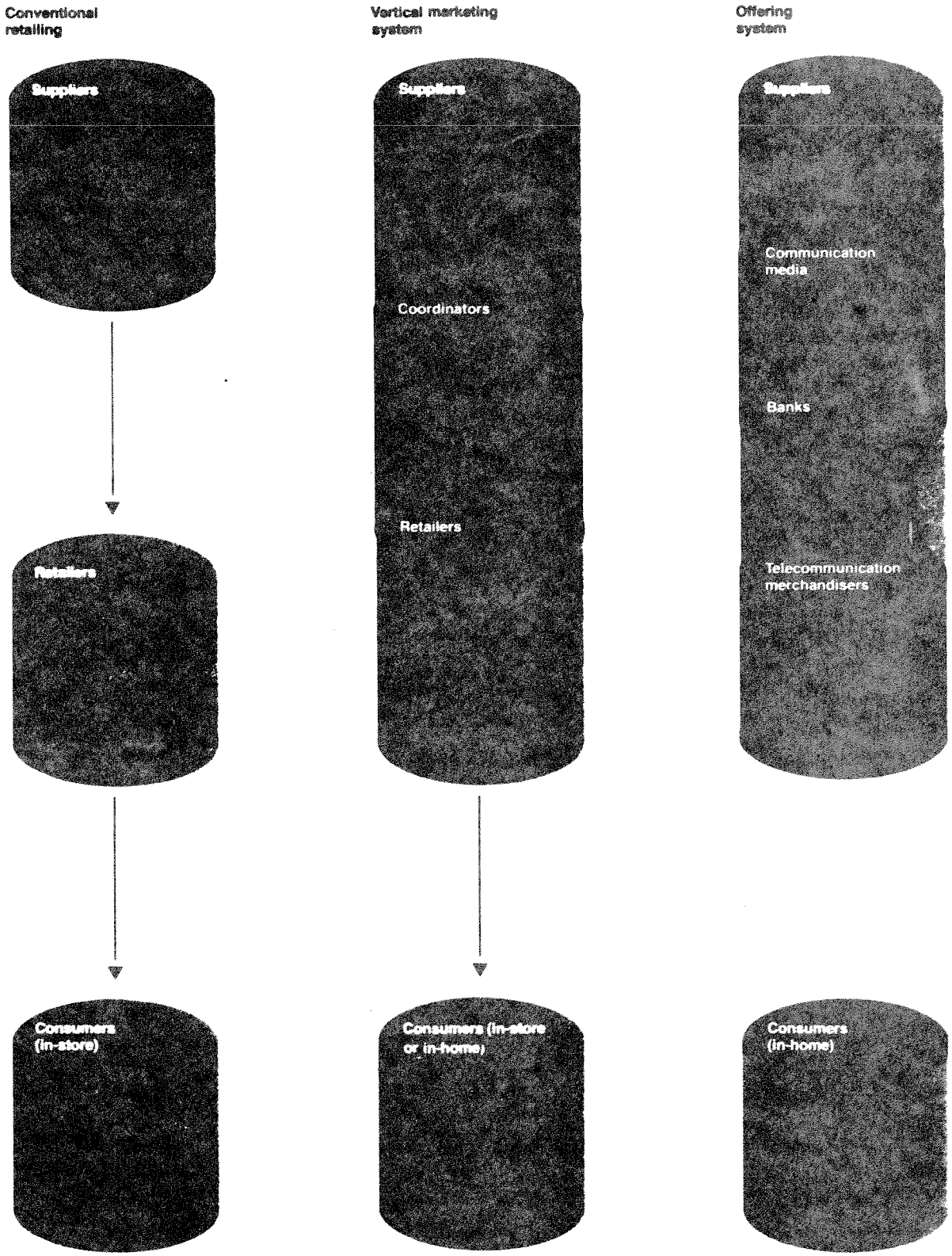
How will an offering system differ from its predecessor, the vertical marketing system? It will have four distinguishing features:

1. The principal commercial members will interact more simultaneously, rather than sequentially (or vertically), to accomplish the work of the system. Its success depends on the integration of several business functions—production, data exchange, warehousing, direct communication, and electronic payment. The system combines those capabilities currently possessed by manufacturers, retailers, and communication media. There is even reason to believe that computer software providers such as AT&T and IBM will become actively involved.

2. The offering system will create more rivalry in distribution. In arranging the offering system's resources, large manufacturers, retailers, and communicators will vie for the coordinator's role. This struggle for control generates new types of distribution conflict because of the new members (media and computer networks) and the sizable financial stakes. Rival systems, organized by the various participants, will strive to forge a distinctive character and competitive advantage. For example, the manufacturer-coordinated system will emphasize an assortment of its brands and rely on its existing warehouse network, while the communicator-coordinated system will excel in merchandising through its televised catalog.

3. The involvement of financial systems in retailing will be greater. It could result in the integration or merger of several retail and financial systems.

Exhibit II
Changing concepts of retailing



For instance, growing retailer adoption of bank credit and bank debit cards is going to affect business relationships; with the advent of offering systems, the payment arrangement will become fused with the transaction. Retailer tie-ins with financial organizations will be physical (computer connections) and economic (credit reserves). The result should be a joint capacity to provide all the goods, services, and financial flows required for consumer buying. All this will be facilitated by the arrival of a nationwide electronic funds-transfer system.

4. Consumer participation in the system is likely to be unprecedented. The offering system's customers will be connected to it by a formal shopping relationship, computer-phone terminal, and credit/debit account. There is more than shopping convenience here. The system will produce a heightened level of customer participation and power in decision making.

When the offering system fully recognizes it has an identifiable, stable customer group, it will strive to keep these consumers satisfied. It will do this through member surveys and member advisory panels (perhaps elected representatives of all members). In time, member opinions will take on the force of "votes," as if by a primary constituency. Particularly if members make their own investments in the home telecommunication equipment, they will feel the right to shape critical system decisions. In short, they will feel more "possessive" than do customers of today's supermarket chains and mass merchandisers. They will think and act more like the members, say, of a large co-op than like transient shoppers.

Cost preview

The actual costs of operating a telecommunication offering system are difficult to estimate on an average basis, because of the diversity of the systems. However, the costs of three functioning prototypes may foreshadow the cost structures that will develop.

A *media capital-intensive system*, incorporating interactive cable television, such as Warner Communications' Qube, costs the consumer subscriber $11 per month. Retailers who have advertised on the system have paid between $1,000 and $5,000 for a 60-second commercial. Several experimental commercials shown over Qube have permitted consumers to order merchandise directly from the sponsoring retailer (such as American Express, Lazarus Department Stores, and Readmore Book Store).

The system represents an investment of approximately $15 million by Warner Communications. Currently Qube serves 30,000 households in the Columbus, Ohio area; it will be expanded to Houston and Cincinnati later this year. Qube's subscribers come from all socioeconomic groups and are quite close in demographic composition to the nation as a whole.

In contrast, a *consumer capital-intensive system* might require a household to purchase a video cassette recorder (approximately $785 to $1,250) or a video disc player (approximately $1,500 to $2,000). The retailer could produce catalog discs or cassettes of product offerings that would be sent or sold to subscribing customers at a cost potentially lower than the cost of advertising the items. The video catalogs would be superior to present catalogs not only in color reproduction; they also could offer motion and music for "mood setting." Presumably, the price charged to subscribers would vary according to the dollar amount of the order generated. Consumers purchasing more than, say, $100 per year in merchandise may be given free video catalog cassettes or discs.

In a *retail capital-intensive system*, the retail entrepreneur may assume primary responsibility for initiating a televised promotional program that could handle telephone, mail, and electronically generated customer orders coupled with an automated warehouse/shipping facility. Using such a system, the K-Tel International Corporation headquartered in Toronto, Canada had sales of over $125 million in 1978, with operating costs of $114 million. Its primary merchandise lines include record albums, motion pictures, and personal and household items.

Thus the costs involved in telecommunication retailing systems are calculable but likely to vary greatly depending on the structure of the systems. The organizations may be media-, consumer-, or retail-capitalized, or financed by a combination of those sources.

Responses of retailers

What do retail executives think about the future of telecommunication shopping and offering systems? We have discussed the possibilities with a number of executives, often asking for their reactions to the various scenarios possible. Their opinions range from extreme skepticism to confident belief.

Some executives doubt the viability of telecommunication assistance in retail transactions. One manager of a major national retail chain told us:

"It seems that every ten years the 'experts' forecast the advent of electronic in-home ordering which is 'sure' to come during the next ten years. It has not happened yet, and frankly, we don't see it happening anytime soon. Those who prefer to shop at home can use our catalog instead of their television set."

To be sure, a substantial proportion of consumers are using catalogs for retail purchasing assistance. For example, in 1977, 9.1% of Sears, Roebuck's business originated from its catalogs, with a corresponding figure of 11.4% of sales coming from catalog counters in Sears stores, making a total of about 20% for catalog-generated sales. This sales proportion has remained constant at Sears for the past five years.

A contrasting perspective is the belief of some retailers that telecommunication retailing will complement, but not replace, existing forms of nonstore retailing, such as catalog, door-to-door, and direct-mail selling. An executive affiliated with a communication corporation asserted: "We see telecommunication as one important way to extend retailers' contacts with consumers. It can supplement their traditional promotion and distribution tools. Some retailers will find it of more use than others, depending on who their customers are, what products they are selling, and what other avenues are available to them."

Although industry executives differ in their opinions of the applicability of telecommunication to their own retailing operations, most tell us they do not rule it out and state that alternative systems are under study. One manager of a specialty chain summed up this view: "Yes, we are actively considering telecommunication systems. We make every attempt to keep abreast of technological developments which may affect our business. One major factor in any decision we might reach concerning telecommunication would, of course, be competitors' use of it. We don't want to be the last to implement it."

Will retailing be transformed?

What will be the specific effects on traditional retailing brought about by the emergence of offering systems? We foresee many important changes. It seems likely that traditional retailers will become increasingly vulnerable as telecommunication shopping catches on.

First, the effects of current social trends should be perplexing for mass-merchandise retailers. As consumers crave more uniqueness and individuality, fewer and fewer products will be purchased as staples, that is, without regard to style, fashion, or social meaning. This implies that the present movement into apparel and soft lines by discount and mass-merchandise stores may be partially stymied by the consumer's desire, backed up by affluence, to buy something that no one else has. The atmosphere and assortment in discount and mass-merchandise stores will fall far short of the individuality that consumers increasingly will demand. Small local stores will be at a disadvantage to diversify and individualize their merchandise mix.

Second, the movement toward in-home purchasing will prey on traditional retailers. As consumers rely more on shopping at home to save time, the retail systems now in the direct marketing arena should prosper. Those retailers who refuse or are slow to develop to-the-home approaches will inevitably suffer.

Third, as consumers become more discerning and produce a higher rate of product returns, repairs, and exchanges, many retailers will feel greater pressure on profit margins. The success formula of many retail enterprises requires high volume to offset low prices. Increased product returns effectively lower net volume and push up operating costs, perhaps substantially. While it is doubtful, for example, that many department stores will fold because of mounting product returns, it is likely that their profitability will be reduced. This problem should weigh more heavily on smaller retailers with fewer units over which to spread costs.

Fourth, the key conditions underlying traditional retailing seem to be eroding. The lifeblood of many store-based companies is a steady stream of automobile-driving consumers who visit an outlet, select a product, and take it home. The waning of each of these habits seriously threatens the retailer's competitive health. Consumers are more reluctant to spend time inefficiently searching for products among the long, crowded aisles typical of many stores, when instead they can order many of the same products from a catalog or by telephone. Similarly they are less inclined to view themselves as delivery systems for transporting products from the store to their homes when retail alternatives exist to take care of delivery.

Energy shortages and costs, especially for gasoline, will serve to reduce further the willingness and ability of consumers to shop as they traditionally have. Frequent trips to a store to restock a few items will

be sharply curtailed. Major shopping trips will be more carefully planned. As the opportunity for comparison shopping by visiting multiple stores decreases due to energy restrictions, the in-home perusal of electronic catalogs becomes an increasingly valuable and desirable shopping alternative.

Changing landscape

In the territory of retail markets, the arrival of offering systems will have some impact on the downtown competitive structure. But many types of stores in the suburbs will fare worse.

As for downtown areas, a historic relationship has linked the prosperity of a city's main commercial district to the activity of its cluster of downtown stores, especially department stores and major specialty stores. The ascendancy of offering systems could jeopardize efforts to revitalize downtown areas by reducing the need to construct new urban retail areas.

While it is improbable that offering systems will halt downtown renewal, they will force store developers to enhance the attractiveness of urban retail centers. This can be done by emphasizing a unique shopping experience, more akin to entertainment than shopping. Notable examples of the successful implementation of such urban centers include the Faneuil Hall Marketplace on the Boston waterfront, the Peachtree and Omni Centers in Atlanta, the Renaissance Center in Detroit, and the Galleria in Philadelphia. A less successful example (at least, as of early 1980) is the imaginative Williams Plaza and related projects in downtown Tulsa; so far, shoppers have not been attracted in large volume.

In the suburbs, on the other hand, offering systems will probably imperil traditional retail stores. Regional shopping malls—composed mainly of efficient, integrated chain retailers—already cater aggressively to the lifestyles and wants of their customers. These large, recreation-oriented shopping environments are filled with a broad and balanced assortment of "ego-intensive" goods and services—fashion clothing, home furnishings, leisure products, and the like. Yet their niche in the competitive structure is not guaranteed.

We fear these stores may be undercut by rising operating costs and customer reluctance to drive great distances, except for high-priority shopping expeditions. Also, the nonstore systems are exhibiting considerable flair in merchandising ego-intensive goods to well-to-do consumers who are pressed for time. Examples of this flair include the enormous array of specialty catalogs mailed directly to consumers, such as the Dallas-based Horchow Collection, Talbot's of Massachusetts, and New York's Hammacher-Schlemmer.

The outlook appears bleaker for stores in smaller and older community shopping centers. Such stores are convenient and good for routine purchases. They will be hurt as consumers place more value on their time and as telecommunication retail mechanisms spread, because their products will be easy to order from home. Many stores in smaller shopping centers, on shopping strips, and of the free-standing type may fold. In this endangered group will be chain and independent outlets such as discount stores, supermarkets, dry cleaners, convenience stores, and potentially a portion of the staple-products volume of the national chain merchandisers (e.g., Sears, K mart, J.C. Penney).

Especially hard hit, we think, will be small, independent stores selling routinely purchased products. Such stores usually are located in strip shopping centers. They cannot match the prices, decor, merchandise variety, and depth of the larger chain competition. Those stores most likely to survive will be small retailers who take shelter in franchised or affiliated systems, thus benefiting from computer hookups, large-scale buying economies, mass advertising, and management expertise.

As the doors close

Offering systems will require sizable amounts of capital and equipment, skilled management and staff, and disciplined administration of all marketing functions and member companies in the coalition. Once formed, these systems should be large, powerful, and quite stable. As a result, new and smaller retailers, wholesalers, and manufacturers will find it increasingly difficult to enter the competitive structure once the offering systems are in place. Barriers to entry may be erected comparable to those in the chemical and automotive industries. This would be a substantial reversal for retailing, traditionally one of the industries most open to new competitors.

Even certain larger retailers, wholesalers, and brand-name manufacturers may be excluded from participation. Those who maintain a cautious attitude toward starting or joining one or more major offering systems may later find themselves shut out from full membership; once completed, the systems will not be interested in more members.

Responding to customers

Offering systems will have to take proconsumer policies seriously. Most successful retailers today have realized that it is sound business to anticipate and satisfy consumer demands. Not only will offering systems be wise to share this customer-oriented philosophy, but also they should emphasize it at the outset. That is the only way they can overcome the skepticism of their initial customers—so vital for positive word-of-mouth communications.

Some typical proconsumer approaches by offering systems should include:

> Assuring the safety of products sold, probably through a testing program operated by the offering system.

> Providing complete, accurate, and straightforward information through advertising, especially televised catalogs.

> Protecting the privacy of personal data on customers in the system's information bank.

> Engaging in consumer education in such areas as nutrition, self-medication, and family budget management.

The broader issue is how responsive offering systems will be to their subscribers regarding specific complaints as well as expressions of satisfaction or dissatisfaction with products and services. Given the complexity and sophistication needed to interact with the offering system, two different scenarios can be constructed:

☐ In the responsive scenario, the offering system will react positively to customer discontent. Using the detailed data available on particular customers and products, management can process complaints fully and personally and authorize the appropriate funds or exchanges rapidly. Because operating problems will be spotted early and corrected quickly, there will be a high level of consumer satisfaction.

☐ In the nonresponsive scenario, complaining customers would confront an overpowering offering system whose very size and complexity would be intimidating. Feeling the futility of obtaining an adequate response, many customers might not bother to report product failures. Faced with the alternative of totally withdrawing from the system, some subscribers might decide to live with the frustration. Other subscribers might stay with the system because their bank accounts and retail purchasing accounts are tied together. In both groups, resentment would be high.

Which scenario will become the reality? The answer depends largely on what the offering system defines as its priorities. Management may choose to perform the role of a beneficent provider, recognizing the primacy of sensitivity to customers. This would entail extensive, continual research on customer satisfaction and special communication networks for questions and complaints. But if management becomes preoccupied with mastering the potential efficiencies by routinizing operations, the shopper will be expected to play by the system's rules, as dictated mainly by its data-processing technology.

The importance to sales and profit growth of having a satisfied customer base—backed up by watchful government agencies—should favor the responsive scenario. Obviously, this will be the route chosen by companies interested in long-run growth.

Appeal to consumers

There are two ways to look at the impact of offering systems on social stratification. One view holds that becoming a member in an offering system is likely to be easiest for consumers who are above average in income and education. These individuals possess the sophistication and willingness needed to cope with the system's requirements as well as the affluence that will make them attractive to marketers. By contrast, other consumers may be excluded from offering system membership. These are the people who are less able to deal with complexity, to comprehend change, and thus to function effectively in the new retail environment. Likely to be drawn from the lower socioeconomic groups, they may fail the creditworthiness tests of the offering system or fear the technical equipment used.

A second view is quite different. In this view, the offering system serves as a leveling device; it works to reduce social class distinctions by making a diversity of products and services available to all consumers, not just to a privileged few. If implemented properly, an offering system could actually help to educate consumers by making them aware of more product attributes and alternatives.

What might motivate an offering system to function as a source of consumer education? For one thing, the desire to operate as a mass merchandiser may spur it to educate a broad audience of participants. For another, it may be prodded by government policies concerning affirmative action and equal access. (In this respect, it is worth noting that the offering system linkage with financial systems could aid disadvantaged consumers by helping them manage and budget their limited funds. Consumers

who have trouble keeping accurate records of their spending on several credit cards could be aided by a system that consolidates all their bills and keeps a running tab of expenditures.)

The potential for both harm and help is present in these systems. Which potential becomes reality can only be answered by management.

Conclusion

We see as a virtual certainty that the era of widespread telecommunication shopping is approaching. We predict that this era will witness significant alterations in the concept of retailing and the nature of retail competition. Like all predictions of great change, this forecast is subject to uncertainties. However, it is worth stressing that our picture of the post-revolution retailing scene is based partly on evidence available today, as well as our reasoned opinion of probable outcomes.

Corporations involved in any way with retailing cannot afford to ignore the developments described. Nor can executives of store-based retailers, shopping center developers, brand-name manufacturers, broadcasters, computer manufacturers, telecommunication suppliers, banks, and credit-card companies wait for the future to unfold before formulating appropriate strategies. The challenge to management in all these retail-related industries is to grasp the dimensions of the coming telecommunication revolution. Soon it will be time to participate in that revolution.

TELECOM APPLICATIONS

WALL STREET JOURNAL
Feb. 20, 1985, p. 35

Computer Users Shop at Home Over the Phone

By JEANNE SADDLER
Staff Reporter of THE WALL STREET JOURNAL

When Thomas Howell wants a dozen roses or a large order of beef, he goes to the den of his suburban Pittsburgh home and orders them on his home computer.

Using a computer-shopping service, he has bought everything from nuts to a refrigerator. "Shopping by computer is more informative, efficient and cheaper," says the 47-year-old airline pilot.

Booming sales of personal computers are translating into thousands of new customers for electronic shopping services. The nation's eight million computer owners can now tap into several such services through their telephones. Comp-U-Card International Inc., a computer-shopping service based in Stamford, Conn., began with 2,000 members in 1973; last month it had 25,000.

"Convenience is what's hooking them," says Mary Vaughn, director of business development for Electronic Mall, offered by CompuServe, a unit of H&R Block Inc.

A Nielsen survey of Electronic Mall found that the service's average user has a median annual income of $44,000 and that 83% of those who used the service liked it. But consumers and marketing experts agree that electronic shopping won't appeal to all consumers, particularly those who enjoy the social aspects of shopping

"You can't discuss the purchase with anybody, see it, handle it or try it out," says William Julian, 41, a college administrator in Pella, Ill.

Martin Nissenholtz, vice president for new technologies at the advertising firm of Ogilvy & Mather Inc., says it's still too early to predict whether computerized shopping services are the wave of the future or of limited importance. "Convenience may not have much to do with the use of computerized shopping," he says. "It's attracting people who aren't afraid of personal computers who just like to shop that way and have some extra money to spend."

The major national services include:

● Comp-U-Store. Begun as a telephone shopping service in 1973, this Comp-U-Card unit has been available by computer since 1979. The service is a general store that features discounts of up to 50% on 60,000 name-brand appliances and other items.

● Comp-U-Mall. Also a Comp-U-Card unit, Comp-U-Mall opened in 1983. The higher-priced service's stores include Saks Fifth Avenue and Neiman Marcus. Anyone with a personal computer can browse through the offerings of Comp-U-Store and Comp-U-Mall, which are available separately or through large computer data banks. But before making a purchase, shoppers must pay a $25 annual membership fee.

● Electronic Mall. Opened last month, this service lets shoppers use charge cards to order from Sears & Roebuck and about 40 other retailers. Subscribers can also order catalogs from Bloomingdale's in New York. The service is available only through its parent CompuServe system, which has a one-time membership fee of about $50 and an hourly charge.

Businesses that subscribe to computer-information systems for financial data, news and other services can also order the shopping systems for hourly fees. The Source Telecomputing Corp., a unit of Reader's Digest Association Inc. and Dow Jones News/Retrieval, owned by the publisher of this newspaper, all offer shopping.

Some consumers use the services to comparison shop. "I'm still a competitive shopper, and I'm using this as a tool to be more competitive," says James West, 25, a Stamford, Conn., engineer, who compares the prices on his computer with those in local stores.

Many retailers that test computer-marketing are surprised at the positive results. Roy Imber, president of Record World Inc., Roslyn, N.Y., says he was amazed at the distribution of his sales during a test period on the Electronic Mall because they included buyers from across the U.S.

Officials at Walden Book Co., a unit of K mart Corp., say the response to the books they listed during the test was good, with business titles selling particularly well. "The demographic profile of these computer users is very similar to our direct-mail customers," says Inger Otter, a company marketing manager. "We found the program time-consuming, however, because people tended to think of us as a library and would ask us (by electronic mail) to look for certain books."

But selling by computer costs less than direct-mail and catalog sales. Walden Books and other businesses are already planning to expand their offering to include more items that appeal to homemakers and children. Clothing, though, isn't expected to sell easily by computer.

"These services could become an efficiency device for those who don't want mail-order catalogs all over the house," says Ogilvy & Mather's Mr. Nissenholtz. "But as long as the personal computer is in the realm of mystique, it'll be hard for people to understand this service."

Assembly Bill No. 2367

CHAPTER 638

An act to add Title 1.6D (commencing with Section 1789) to the Civil Code, relating to commercial transactions.

[Approved by Governor August 15, 1984. Filed with Secretary of State August 16, 1984.]

LEGISLATIVE COUNSEL'S DIGEST

AB 2367, Moore. Telecommunications: commercial transactions.

Existing law does not specifically regulate the sale of goods or services to consumers through the use of telecommunication networks. The existing federal law, however, regulates certain types of electronic fund transfers.

This bill would enact the Electronic Commerce Act of 1984, which would require any person who contracts with consumers to provide an electronic commercial service, as defined, to provide to the consumer at the time of contracting, specified information including the charges imposed and the procedure which may be followed to resolve a complaint regarding use of the service. The bill would also contain a statement of legislative intent and would specify that the provisions of the bill shall not apply where they are inconsistent with, or infringe upon, federal law or regulation. The bill would provide for the imposition of a civil penalty not to exceed $5,000 upon any provider of an electronic commercial service who knowingly and willfully violates any of the provisions of the bill. The bill would apply only to transactions entered into on or after July 1, 1985.

The people of the State of California do enact as follows:

SECTION 1. Title 1.6D (commencing with Section 1789) is added to the Civil Code, to read:

TITLE 1.6D. ELECTRONIC COMMERCE

ARTICLE 1. GENERAL PROVISIONS

1789. The Legislature hereby finds and declares that it is in the public interest that consumers have comprehensive knowledge of services available through electronic commerce and to that end hereby enacts the Electronic Commerce Act of 1984.

1789.1. This title may be cited as "The Electronic Commerce Act of 1984."

1789.2. For the purposes of this title, the following terms have the meanings expressed in this section:

(a) "Electronic commercial service" or "service" means an

electronic shopping system to conduct the purchase of goods and services via a telecommunications network, but does not mean conventional voice-only telephone service, one-way television or radio broadcasting, an electronic fund transfer system, or a service provided through an electronic terminal located at a place of business where the sale of goods or services sold through that service otherwise occurs.

(b) "Consumer" means a natural person who purchases goods or services using an electronic commercial service.

(c) "Provider of service" means a person who contracts with consumers to provide an electronic commercial service.

1789.3. The provider of an electronic commercial service shall provide to consumers with which it contracts to provide the service, at the time it contracts to provide the service, all of the following information:

(a) The name, address, and telephone number of the provider of service.

(b) Any charges to the consumer imposed by the provider for the use of the service.

(c) The procedures a consumer may follow in order to resolve a complaint regarding the service or to receive further information regarding use of the service, including the telephone number and address of the Complaint Assistance Unit of the Division of Consumer Services of the Department of Consumer Affairs.

1789.5. (a) Any provider who knowingly and willfully violates any provision of this title is liable for a civil penalty not to exceed five thousand dollars ($5,000) which may be assessed and recovered in a civil action brought in the name of the people of the State of California by the Attorney General, by any district attorney or city attorney, or by a city prosecutor in any city or city and county having a full-time city prosecutor, in any court of competent jurisdiction.

(b) If the action is brought by the Attorney General, one-half of the penalty collected shall be paid to the treasurer of the county in which the judgment was entered, and one-half to the General Fund. If the action is brought by a district attorney, the penalty collected shall be paid to the treasurer of the county in which the judgment was entered. If the action is brought by a city attorney or city prosecutor, one-half of the penalty shall be paid to the treasurer of the city in which the judgment was entered, and one-half to the treasurer of the county in which the judgment was entered.

1789.6. Nothing in this title shall be construed to limit the liability of a provider of service to a consumer for errors or omissions arising from the operation of an electronic commercial service.

1789.7. (a) This title does not apply where it is inconsistent with, or infringes upon, federal law or regulation.

(b) This title does not apply to the rights and obligations of a cardholder and a card issuer with respect to the use of a credit card arising from the purchase of goods or services conducted through an

electronic commercial service. For the purpose of this subdivision, "cardholder," "card issuer," and "credit card" have the same meaning as those terms are given in the federal Fair Credit Billing Act (15 U.S.C. Sec. 1601 et seq.) and regulations adopted thereunder, or, if applicable, the Song-Beverly Credit Card Act of 1971 (Title 1.3 (commencing with Section 1747)).

(c) This title does not apply to the rights and obligations of a consumer and a financial institution with respect to any electronic fund transfer arising from purchase of goods or services conducted through an electronic commercial service. For the purposes of this subdivision, "consumer," "financial institution," and "electronic fund transfer" have the same meaning as those terms are given in the Electronic Fund Transfer Act (15 U.S.C. Sec. 1601 et seq.) and regulations adopted thereunder.

1789.8. This title applies to transactions entered into on or after July 1, 1985.

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91 100

AMENDED IN ASSEMBLY SEPTEMBER 10, 1985

AMENDED IN ASSEMBLY JULY 18, 1985

AMENDED IN ASSEMBLY JUNE 12, 1985

AMENDED IN ASSEMBLY MAY 15, 1985

CALIFORNIA LEGISLATURE—1985–86 REGULAR SESSION

Assembly Constitutional Amendment No. 9

Introduced by Assembly Members Moore, Bradley, Hauser, and Statham

(Coauthors: Senators McCorquodale, Bill Greene, and Watson

January 30, 1985

Assembly Constitutional Amendment No. 9—A resolution to propose to the people of the State of California an amendment to the Constitution of the State, by amending subdivision (a) of Section 2 and Section 13 of Article I thereof, relating to electronic communications, information systems, and data bases.

LEGISLATIVE COUNSEL'S DIGEST

ACA 9, as amended, Moore. Electronic communications, information systems, and data bases.

The California Constitution guarantees the freedom to speak, write, and publish on all subjects and prohibits abridgment of the liberty of speech or press.

This measure would guarantee the right to electronically communicate on all subjects, and would provide that a law may not restrain or abridge liberty of access to the means of electronic communication.

The California Constitution also guarantees the right of the people to be secure in their persons, houses, papers, and

effects against unreasonable seizures and searches. A warrant may not issue unless, among other things, it particularly describes the place to be searched.

This measure would specify that personal information stored in electronic information systems and *computer* data bases is included in the search and seizure guarantees.

Vote: ⅔. Appropriation: no. Fiscal committee: no. State-mandated local program: no.

Resolved by the Assembly, The Senate concurring, That the Legislature of the State of California at its 1985–86 Regular Session commencing on the third day of December 1984, two-thirds of the members elected to each of the two houses of the Legislature voting therefor, hereby proposes to the people of the State of California that the Constitution of the State be amended as follows:

First—That subdivision (a) of Section 2 of Article I thereof is amended to read:

SEC. 2. (a) Every person may freely speak, write, publish, or electronically communicate his or her sentiments on all subjects, being responsible for the abuse of this right. A law may not restrain or abridge liberty of speech, press, or access to the means of electronic communication.

Second—That Section 13 of Article I thereof is amended to read:

SEC. 13. The right of the people to be secure in their persons, houses, papers, and effects, including personal information stored in electronic information systems and *computer* data bases, against unreasonable seizures and searches may not be violated; and a warrant may not issue except on probable cause, supported by oath or affirmation, particularly describing the place or location to be searched and the persons and things to be seized.

O

PUBLIC IMAGE

by Larry Hunter

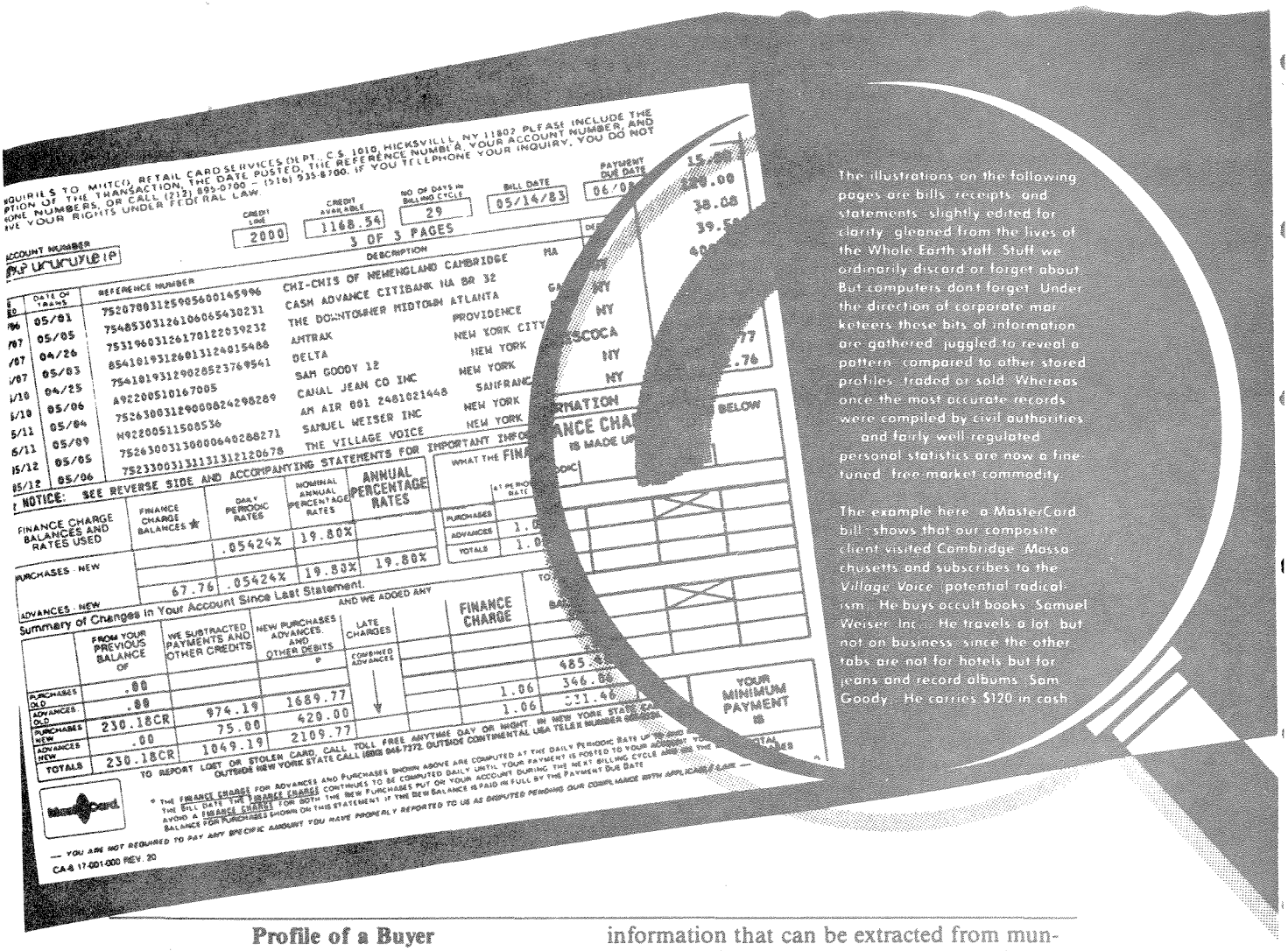
Every day you give out evidence about yourself. Computers can merge these clues into a remarkably complete image of your habits, identity, and thoughts.

Headed for a PhD in computer science, Larry Hunter has been playing with computers since he was ten. He uses a powerful, state-of-the-art workstation at Yale and telecommunicates to it from home on an itsy-bitsy lap computer. The encompassing reach of computers which he describes in this article has made two differences in his own life. It has granted him computer expertise to assist his favored local politicians in their campaign strategies, and it has frightened him into the habit of keeping his paper-life to a minimum, and withholding his ID and Social Security numbers from anyone who does not legally require them.

—Kevin Kelly

I LIVE IN YOUR FUTURE. As a graduate student in Artificial Intelligence at Yale University, I am now using computer equipment that will be commonplace five years from now. I have a powerful workstation on my desk, connected in a high-speed network to more than one hundred other such machines, and, through other networks, to thousands of other computers and their users. I use these machines not only for research, but to keep my schedule, to write letters and articles, to read nationwide electronic "bulletin boards," to send electronic mail, and sometimes just to play games. I make constant use of fancy graphics, text formatters, laser printers — you name it. My gadgets are both my desk and my window on the world. I'm quite lucky to have access to all these machines.

But with this privilege comes a certain sobriety: I've begun to contemplate some of the effects the computer will have on society. It is impossible to predict what our interconnected, information-oriented society will look like in detail, but some of the outlines are becoming clearer. The ubiquity and power of the computer blur the distinction between public and private information. Our revolution will not be in gathering data — don't look for TV cameras in your bedroom — but in analyzing the information that is already willingly shared. Without any conspiratorial snooping or Big Brother antics, we may find our actions, our lifestyles, and even our beliefs under increasing public scrutiny as we move into the information age.



The illustrations on the following pages are bills, receipts, and statements, slightly edited for clarity, gleaned from the lives of the Whole Earth staff. Stuff we ordinarily discard or forget about. But computers don't forget. Under the direction of corporate marketeers these bits of information are gathered, juggled to reveal a pattern, compared to other stored profiles, traded or sold. Whereas once the most accurate records were compiled by civil authorities, and fairly well regulated, personal statistics are now a fine-tuned, free-market commodity.

The example here, a MasterCard bill, shows that our composite client visited Cambridge, Massachusetts and subscribes to the *Village Voice*, potential radicalism. He buys occult books, Samuel Weiser Inc. He travels a lot, but not on business, since the other tabs are not for hotels but for jeans and record albums, Sam Goody. He carries $120 in cash.

Profile of a Buyer

Shoppers who think they are only vague entries on some company's list might lose that anonymity if they hold Mastercard or Visa credit cards. A new service by Citicorp Credit Services, a Citicorp subsidiary, will provide businesses that accept Mastercard and Visa credit cards with a detailed profile of their customers. The data will come close to pinpointing the bank card shoppers' income, education, family, housing type and value, age, vocation, even "lifestyle."

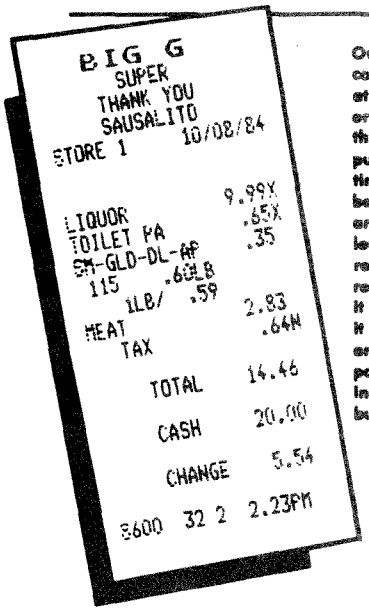
Alan Newman, vice president and marketing director for Citicorp Credit Services, said that until now, businesses that subscribed to bank cards have only been able to get generalized demographic profiles of those who use the cards. But an arrangement with Donnelley Marketing Information Services, a Dun & Bradstreet subsidiary, will allow Citicorp to combine Donnelley demographic data with Citicorp's own cardholder data, he says, "even to the very block of a community." —*New York Times*, 18 March 1984

How does Citicorp know what your lifestyle is? How can they sell such information without your permission? The answer is simple: You've been giving out clues about yourself for years. Buying, working, socializing, and travelling are acts you do in public. Your lifestyle, income, education, home, and family are all deducible from existing records. The information that can be extracted from mundane records like your VISA or MasterCard receipts, phone bill, and credit record is all that's needed to put together a remarkably complete picture of who you are, what you do, and even what you think.

BLOC MODELLING

A powerful technique used by managers of large amounts of data is called *bloc modelling*. The goal of bloc modelling is to evaluate how people fit into an organization or group, based on their relations with other members of the group. The primary use of this practice, which was developed more than a decade ago, has been to examine how employees fit into the firm where they work. Bell Labs, ABC, the Wharton School, and even the Institute for Social Management in Bulgaria are among those who have used the technique.

The mathematics and computations behind the process are complicated, but the underlying idea is simple: While the relationship between two people in an organization is rarely very informative by itself, when many pairs of relationships are connected, patterns can be detected. The people being modelled are broken up into groups, or *blocs*. The assumption made by modellers is that people in similar positions


BIG G
SUPER
THANK YOU
SAUSALITO
STORE 1 10/08/84

LIQUOR	9.99X
TOILET PA	.65X
SM-GLD-DL-AP	.35
115 .6@1.8	
1LB/ .59	
MEAT	2.83
TAX	.64N
TOTAL	14.46
CASH	20.00
CHANGE	5.54

8600 32 2 2.23PM

Our local supermarket employs computerized laser scanners at the checkout. These generate itemized receipts, like this one which shows a large purchase of liquor and the time of day. Our client might be unjustly accused of having an undisclosed drinking problem. This store does not record customer ID numbers required to cash checks, but if it was one of those which did, it would rapidly accumulate an economic gold mine (and political gas pocket): an individual's extensive buying history.

behave similarly. Blocs aren't tightly knit groups. You may never have heard of someone in your bloc, but because you both share a similar relationship with some third party you are lumped together. Your membership in a bloc might become the basis of a wide variety of judgements, from who gets job perks to who gets investigated by the FBI.

Where does the initial data come from? In the office, it may be who you talk to on the intercom, whose phone calls you return (or don't return), who you eat lunch with, who you send your memos to, even who you play softball with. Fancy telephone systems, electronic mail, and bulletin boards make gathering this relational data even easier. When personal computers are on every desk, routine information about who says what to whom is automatically generated and easily collected. Employers and others can keep track of that mundane information, and save it in a database that can be bloc modelled later.

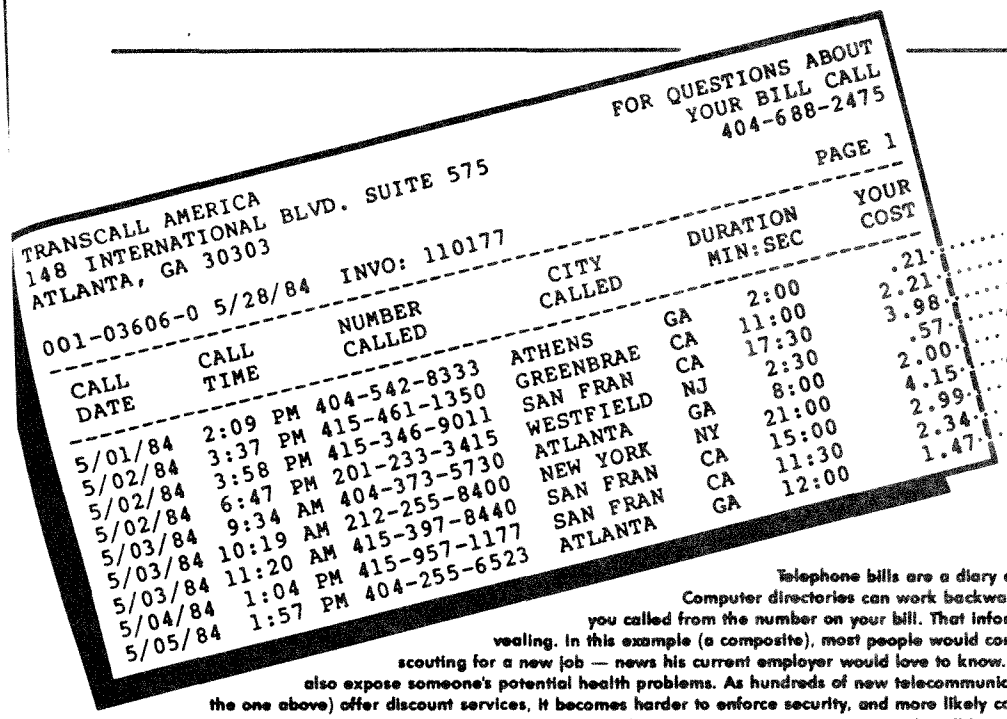
Bloc modelling is used to separate people, cliques, and whole organizations into categories which determine the way the modeller may ultimately treat the groups. While conceptually similar to the more familiar "redlining," it is unlike other kinds of discrimination, since the blocs found are generally inconspicuous, and the members may easily fail to recognize their common fate. Furthermore, the existing laws protecting privacy, such as those that guarantee individuals access to their own files, do not address bloc modelling. It is difficult to imagine what remedies might be devised for this new form of guilt by association.

WHEN IS PRIVATE INFORMATION PUBIC?

We live in a world of private and public acts. We consider what we do in our own bedrooms to be our own business; what we do on the street or in the supermarket is open for everyone to see. In the information age, our public acts disclose our private dispositions, even more than a camera in the bedroom would. This doesn't necessarily mean we should bring a veil of secrecy over public acts. The vast amount of public information both serves and endangers us.

To make this idea clear, I'd like to use an example invented by Jerry Samet, Professor of Philosophy at Bentley College. He suggests that, although we consider it a violation of privacy to look in somebody's window and notice what they are doing, we have no problem with the reverse: someone sitting in his living room looking *out* his window. If I'm looking out my window and I notice you walking down my street, I may notice that you are wearing a red sweater, holding hands with someone else, or heading towards the local bar. If I wanted to, I might write down what I saw out my window. Consider what happens if I write down everything I see out my window, and all my neighbors do, too. Suppose we shared notes and compiled the data we got just by looking out our own windows. When we sorted it all out, we would have detailed personal profiles of everyone we saw. If every move anyone made in public were recorded, correlated, and analyzed, the veil of anonymity protecting us from constant scrutiny would be torn away. Even if that record were never *used,* its very existence would certainly change the way we act in public. The idea that someone is always watching is no less threatening when the watching goes on in the supermarket, in the department store, and in the workplace than when it goes on in our homes.

The harmful consequences of just keeping personal profiles pale in comparison with the problems associated with their use. We don't have to look far into the future to imagine how such files could be used. There is a pressing example already apparent in two proposed additions to the National Crime Information Computer. The computer, or NCIC as it is commonly called, was set up to track wanted criminals and stolen property across state lines. When a policeman makes a routine traffic stop or otherwise confronts a stranger, the first thing he does is check the name through NCIC. If his name is in NCIC, the officer can search or arrest him, or take other discretionary action. The FBI now wants to add people to the database who have been accused of nothing, but are *suspected* of organized crime connections, terrorism, or narcotics possession, or are "known associates" of drug traffickers. Their avowed goal is to keep track of the whereabouts of such people. The FBI claims that this rep-



TRANSCALL AMERICA
148 INTERNATIONAL BLVD. SUITE 575
ATLANTA, GA 30303

FOR QUESTIONS ABOUT YOUR BILL CALL 404-688-2475

PAGE 1

001-03606-0 5/28/84 INVO: 110177

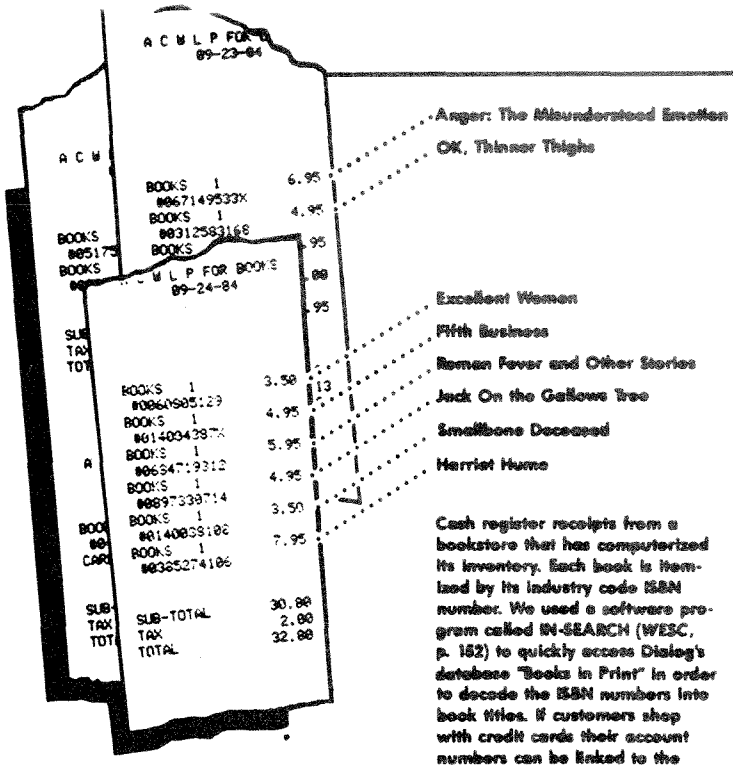
CALL DATE	CALL TIME	NUMBER CALLED	CITY CALLED		DURATION MIN:SEC	YOUR COST	
5/01/84	2:09 PM	404-542-8333	ATHENS	GA	2:00	.21	John Patton (friend)
5/02/84	3:37 PM	415-461-1350	GREENBRAE	CA	11:00	2.21	Ross Valley Health Clinic
5/02/84	3:58 PM	415-346-9011	SAN FRAN	CA	17:30	3.98	Robert Larsen, M.D., Psychiatrist
5/02/84	6:47 PM	201-233-3415	WESTFIELD	NJ	2:30	.57	Michael Patrick (brother)
5/03/84	9:34 AM	404-373-5730	ATLANTA	GA	8:00	2.00	Tom Werner (friend)
5/03/84	10:19 AM	212-255-8400	NEW YORK	NY	21:00	4.15	Geneva Employment Agency
5/03/84	11:20 AM	415-397-8440	SAN FRAN	CA	15:00	2.99	Horizon Personnel Service
5/04/84	1:04 PM	415-957-1177	SAN FRAN	CA	11:30	2.34	Kemp Employment Agency
5/05/84	1:57 PM	404-255-6523	ATLANTA	GA	12:00	1.47	L.M. Miller, Management Consultants

Telephone bills are a diary of your conversations. Computer directories can work backwards and deduce the name you called from the number on your bill. That information is extremely revealing. In this example (a composite), most people would conclude that our client is scouting for a new job — news his current employer would love to know. Telephone diaries can also expose someone's potential health problems. As hundreds of new telecommunications companies (like the one above) offer discount services, it becomes harder to enforce security, and more likely computerized telephone records will become an item of trade.

resents a "logical progression" of the crime center's efforts. The idea that associating with someone who gets arrested could get your name into the national crime database is scary enough. Worse yet, the Secret Service wants to get into the act. They want to sidestep the judicial process by directly entering the names of people they consider to be dangerous to the President or other high officials into NCIC without obtaining warrants. If the FBI and the Secret Service get their way, having the wrong friends or being on the wrong side of the Executive Branch could get your name into the computer, subjecting you to police harassment, surveillance, even detention. Since just adding a name to NCIC doesn't legally deprive anyone of liberty or property, constitutional due process constraints do not apply.

Why not make gathering this information against the law? Think of Samet's metaphor: do we really want to ban looking out the window? The information about groups and individuals that *is* public is public for a reason. Being able to write down what I see is fundamental to freedom of expression and belief, the freedoms we are trying to protect. Furthermore, public records serve us in very specific, important ways. We can have and use credit because credit records are kept. We can prevent the sale of handguns to convicted felons because criminal records are kept. Supermarkets must keep track of their inventories, and since their customers prefer that they accept checks, they keep information on the financial status of people who shop in their store. In short, keeping and using the kind of data that can be turned into personal profiles is fundamental to our way of life — we cannot stop *gathering* this information.

What we have to do is find a way to control its *use*. We need to make it possible to draw distinctions between the kinds of information processing, dissemination, and use we want to allow and the kinds we want to prohibit. Some uses of personal information are quite reasonable. Using conviction records to avoid selling guns to criminals is a legitimate use of personal data. Keeping track of who I call on the telephone and for how long is legitimate if the purpose is to bill me for those calls. Writing down what books I buy is fine, so long as the intent is to maintain the inventory at my local bookstore. There are a variety of traditional, necessary, and nonthreatening uses of personal information. Ideally, any use of information outside the scope of these traditional ones should require the knowledge and consent of the person the information is about. Marketing and direct advertising are not traditional uses of personal information, and should not be thought of as such. I should be able to choose whether or not I want my local bookstore to keep a list of the books I buy, even if they just want to mail me ads for new books they think I'd like. I should be able to prevent a company from selling my name and address to someone else without my permission. I don't want the FBI to be able to look at my consumer records and decide that my lifestyle fits their model of a subversive or a drug user. I certainly do not want employers to use bloc modelling to fire people on the basis of who they associate with, or politicians to use it to identify their "enemies." →



Cash register receipts from a bookstore that has computerized its inventory. Each book is itemized by its industry code ISBN number. We used a software program called IN-SEARCH (WESC, p. 152) to quickly access Dialog's database "Books in Print" in order to decode the ISBN numbers into book titles. If customers shop with credit cards their account numbers can be linked to the reading history of an individual. Even emotion can be tallied. From the book titles we have a clue that our client may be quite angry.

INFORMATION AS PROPERTY

People under scrutiny ought to be able to exert some control over what other people do with that personal information. Our society grants individuals control over the activities of others primarily through the idea of property. A reasonable way to give individuals control over information about them is to vest them with a *property interest* in that information. Information about me is, in part, my property. Other people may, of course, also have an interest in that information. Citibank has some legitimate interests in the information about me that it has gathered. When my neighbor writes down that I was wearing a red sweater, both of us should share in the ownership of that information.

What does it mean to own information? To share in such ownership? How can existing laws about property be interpreted to make judgements about the use and control of information? These questions must ultimately be answered by the legislators who draft laws giving information property status, and the courts who interpret those laws. We can begin to imagine some of the implications of such an approach. What makes information different from other kinds of property is that it is intangible: it cannot be touched, held, or seen directly. The same information can be in two places at once. Other than that, information is like other kinds of property: it can have monetary value, it can be produced, improved, or degraded, and one can share, withhold, or transfer it to others.

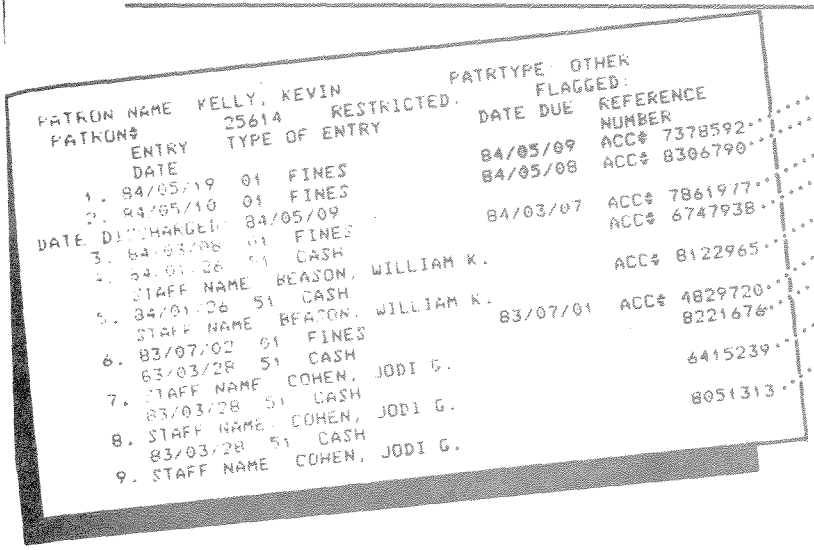
Is information enough like property to be successfully integrated into property law? The process has already begun in many legislatures. Across the country laws are being passed that make unauthorized access, duplication, or tampering with information stored in computers a crime. These laws are deemed necessary because existing burglary statutes don't apply to copying information, or looking at it, especially if the access was by remote computer. When computer data is copied by an unauthorized outsider that action resembles burglary, and it is treated as such in these new laws. If it is like burglary, then something is being stolen. In this context, information is already being implicitly treated as if it were property.

If we are to treat information as property *explicitly*, some of our ideas about property will have to be changed. Information can be stolen by copying it, leaving the original behind. If information is merely what is known, how can it be taken away? How can vesting the individual with the rights associated with property, particularly the right of excluding others from that property, be specifically translated into control over analysis of data? How can we define information so that knowledge in a computer is property that can be controlled, but knowledge inside someone's head is not? Enforcement presents another problem: how can we tell if someone is using personal information illicitly? The example of copyright law suggests that, while finding small abuses of intangible property is difficult, finding major violations is no harder than other law enforcement tasks.

SEARCH AND SEIZURE OF INFORMATION

Treating information as property has an additional benefit. As the law currently stands, information isn't property, but computers are. The owner of the computer has been held to control everything "inside" his computer. That means that if I write a personal note on my office workstation, my employer has the right to read it. By contrast, he has no right to read a note I write on company stationery with a company pen and put in my (company owned) desk. More importantly, my employer can give permission to law enforcement agencies to go on a fishing expedition through my files in his computer, which, metaphorically, gives the police the right to rummage at random through any employee's "desk." This is not hypothetical; a case of just such abuse was reported by Larry Layton, a government employee.

Layton worked in a Defense Department office (DARCOM) which was fully electronic. Most



These books were checked out of a university library, initiating an entry in the library's computer. After a few months the complete transcript of books lent to a patron is deleted for lack of file space, but a history of all overdue books is retained for financial records. The books above were each overdue once. It might interest someone that our client borrowed books on hallucinogens and was late in returning them.

employees had computers and all used electronic mail to communicate with each other. There were over 3000 users with access to the system, and 500 in-house users of internal workplace computers. All writing and interoffice communication, as well as other office support, was done on a computer. At least three times, the Army Criminal Investigation Division, in conjunction with the FBI, obtained complete dumps of all the workplace automation computers without any type of court order or specification of what they were looking for, other than "wrongful use of government property." A "complete dump" means that every bit of information was printed out and examined. Using the analogy to desks, it is as if the FBI went through every employee's desk looking at every piece of paper, through every address book, reading every memo and every piece of mail. After finding one person who had a recipe in an electronic mail message, and another who had a baby sitter's phone number in a telephone number file, the FBI read each his rights and threatened retribution. The legal staff of the operation advised the managers that the searches were legal since computer files don't fall under any of the same protections that, say, telephone usage does. The searches have resulted in the employees refraining from using the system for communication, electronic mail, filing, and many other applications.

This sort of witch-hunt is only the beginning. Electronic mail typically goes through several computers before reaching its final destination. The owner of each of those computers apparently has the full legal right to read, copy, and disseminate anything contained in his computer, including that mail. Since the U.S. Postal Service, MCI, and a host of other similar entities are operating electronic mail services, one might think that electronic mail had the same protection and privacy as a paper letter or a phone call. It does not. It is, for the time being, completely open to anyone through whose computer it passes. We must extend the special status of the letter and the phone call to all forms of electronic communication. The idea of *information as property* will protect that information with the rules of search and seizure that apply to other kinds of property. It will provide the connection between sending a letter and sending electronic mail necessary to protect the content of our communication.

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It is time our legal technicians turned their attention to framing answers in the language of the law. We will need to define many gray areas, and insure that we tread carefully in these sensitive areas of personal information. I think we can specify the uses we consider traditional, and separate those we consider new or threatening. Lawyers, computer scientists, businessmen, and an informed public must work together to bring to our legal system a carefully crafted new framework for thinking about information.

Computers and electronic communication are ushering in a new age. We will be able to talk to more people in more ways than ever before. The dramatic increase in our ability to communicate may be the glue that we need to hold our fragile world together. Computers also help us analyze all the information we can gather and exchange, helping us to understand the world around us. It is precisely those abilities which make computers threatening, too. Soon celebrities and politicians will not be the only ones who have public images but no private lives — it will be all of us. We must take control of the information about ourselves. We should own our personal profiles, not be bought and sold by them. ■

TELECOMMUTING: OFF TO A SLOW START

The idea of letting employees do their work at home via computer has a lot of appeal, but few corporations have adopted it wholeheartedly. Those who have, however, are finding it brings benefits to employers and employees alike.

BY DAVID NEEDLE

Even its ardent advocates are often quick to admit that telecommuting is not being implemented as rapidly as many had expected.

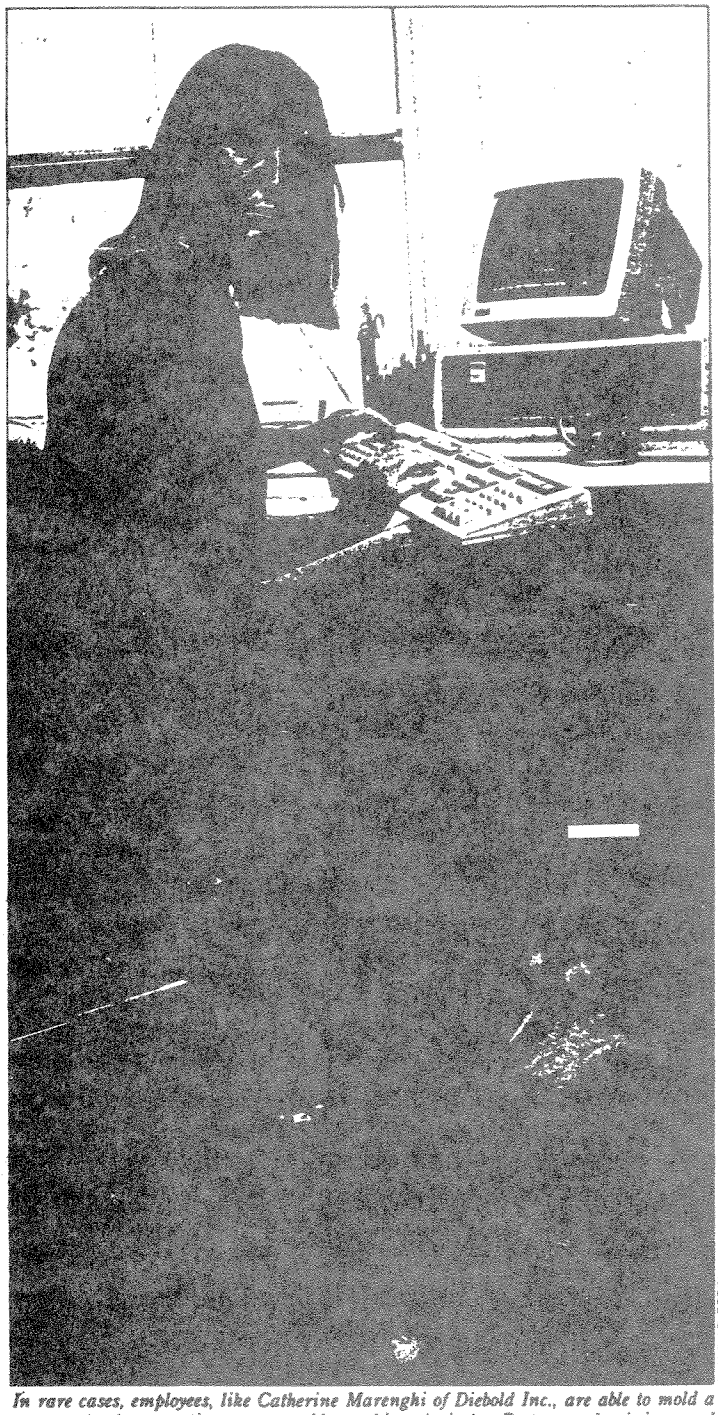
"The first and foremost reason is that it's new and different," says Gil Gordon, a telecommunications consultant and editor of the *Telecommuting Review*, published in Monmouth Junction, New Jersey. "We have to remember that telecommuting is challenging a 100-year tradition of going to the office that started with the industrial revolution. As much as corporate CEOs may talk about innovation, it is much easier to stay with something well-understood."

Management resistance and an entrenched corporate culture are major reasons for the reluctance to try telecommuting programs, agrees Margrethe Olson, an associate professor at New York University's Graduate School of Business, who has observed and researched telecommuting projects for the past five years. "There is a tremendous investment in the corporate culture that says you [the employee] belong to us, and it's very hard to change that," she says.

Gordon feels that an equally important factor may be that the benefits of telecommuting to the employer are not always emphasized as much as the benefits to the employee, who gets to work at home. "Employers are normally selfish, and they should be," he says. "They have to understand the business benefits before they make a change like this."

Benefits of telecommuting to the employer include improved recruiting and retention of good personnel, reduced costs for office space, and increased productivity, says Gordon. To realize such advantages, however, the company must have a well-thought-out program, he warns. "Some of the early ones were thrown together almost in a matter of days," he says. "You just can't do it that way."

In spite of the difficulties, various analysts estimate that there are between 300 and 600 corporations actively pursuing formal telecommuting projects. One such firm is the Pacific Bell phone company in California, which has had a telecommuting program in place for more than a year. Today there are approximately 70 Pac Bell employees working at remote locations, mostly from their own homes.



FREDRIK D. BODIN

In rare cases, employees, like Catherine Marenghi of Diebold Inc., are able to mold a company's telecommuting program. Marenghi works in her Boston condominium and sends her reports to the main office in New York via modem.

"The results so far are good," says Rick Higgins, a marketing manager for Pac Bell in San Francisco, who is a participant in the program. Most of the employees in remote locations use an IBM PC or compatible computer with a modem that's supplied by the company. Unlike some other firms that have allowed limited telecommuting on a contract basis, participants in the Pac Bell program remain full-time employees at the firm. "Our position is that an employee at a remote location is an employee with the same benefits, pay scale, and [opportunity for] raises as anyone else," says Higgins.

Participation in the telecommuting program at Pac Bell is voluntary, and participants are required to go through a training and screening processing to make sure they will be comfortable in the new work environment, according to Higgins. Managers also receive instruction on how to adjust to supervising remote workers. "I think [telecommuting] is appropriate anytime; it makes sense and it works," says Higgins.

Heidi Hesse, another Pac Bell telecommuter, shares Higgins' enthusiasm. "I can't think of any aspect of my life this hasn't enhanced," says Hesse, who maintains various company databases and works on other computer-related projects for the company.

Although isolation from coworkers is an issue often raised as a negative aspect of telecommuting, Pac Bell appears to be doing a lot to keep its effects to a minimum. Pac Bell has a private voice mail system, for example, that all employees including the telecommuters make use of. And Hesse, like Higgins and others in the program, report to the office at least once a week to meet with coworkers, check mail, and do other tasks that require a physical presence in the office. "The day I go in is important because it's the only time I have to make face-to-face contact and have social interaction with the people I work with," says Hesse. "I'm still kind of dazed that the phone company, which people see as so old school, would come up with something as

progressive as this," she says.

Unfortunately, not all telecommuting programs have met with a positive response from the participants. Recently, eight telecommuters at California-Western States Life Insurance Co. (Cal-Western) of Sacramento, California, brought suit against the firm, seeking reimbursement for lost benefits. Unlike the Pac Bell program, Cal-Western employees were put on a contract basis when they chose to become telecommuters and paid on a piecework basis for processing insurance forms; in return, they forfeited their benefits as full-time employees.

"It sounded great," recalls Pamela Edwards, who entered the program in July 1984. The eight women workers, some of whom had been in the program over two years, were reasonably happy with the plan for some time, she says. It gave them more flexibility in their work schedule for such things as caring for children at home. But things began to unravel for some of the telecommuters when, due to a new contract with the state of California, Cal-Western changed the way the insurance needed to be processed. The new methods required the workers to learn new coding without the training that in-house processors received, according to Edwards.

The women found their incomes going down and their hours going up. "We weren't true independent contractors — the company made changes, and we weren't given the ability to adjust," she says. "We felt we were really employees, because we did the same things as other employees. The problem was they were unwilling to negotiate any provision of the contract." When their attempts to negotiate with the company failed, the women finally filed suit last December.

Edwards says she still believes in the concept of telecommuting if it includes full-time benefits and a formal program with training and support services for telecommuters. "I would do it again under different circumstances," she says. "They didn't know how to the run the program; it was poorly managed."

"We still feel it's a good program for the company and the people who want to be independent," says attorney Steve Belikoff, who is representing Cal-Western in the suit. "It seems to us they knew what they were doing when they started the program," he says of the eight women, emphasizing that the terms of the arrangement made it clear they would be giving up employee benefits for their independence. He adds that there is a waiting list of people at Cal-Western who would like to get on the program.

Telecommuting proponents say the Cal-Western case shows how important it is to plan and monitor such projects. "It appears the company misapplied the use of independent contractor status," says *Telecommuting Review's* Gordon. "If an employee does the same job on a contract basis, you can't take him off the payroll." Gordon further argues that it is in a company's best interest to keep telecommuting employees on the payroll to maintain a sense of loyalty. "Besides, there is plenty of savings in telecommuting anyway. There's no reason to be greedy," adds Gordon.

The reason that some telecommuting programs don't work is poor planning, agrees Marcia M. Kelly, president of Electronic Services Unlimited a New York-based research and consulting firm specializing in telecommuting. "The problem is that innovation or change is disruptive to some organizations, they like things the way they are."

In rare cases, employees are able to initiate and structure the terms of a telecommuting program. That was the case with Catherine Marenghi when she took a

Our position is that an employee at a remote location is an employee with the same benefits, pay scale, and raises as anyone else,' says Pac Bell's Rick Higgins.

Diebold Inc., an international management consulting firm based in New York. At the time John Diebold, chairman of the firm, offered her the job, Marenghi was working in Boston and didn't want to leave. "Telecommuting was something he [Diebold] had been preaching in his consulting to firms, and he was already predisposed to the idea of how computers can change the work place," recalls Marenghi.

Diebold agreed to a plan that would let Marenghi set up a home office in her Boston condominium and purchase a computer/communications system of her choosing that would help her prepare the reports she would do for Diebold. She decided on a system with a DEC Rainbow 100 personal computer, Hayes 1,200-bit-per-second modem, Daisy Writer printer, and the Final Word word processing program. Marenghi transmits files to Diebold's main office in New York via the ITT Dialcom network. A secretary downloads Marenghi's files and formats and prints them out for Diebold to read.

Marenghi is also distinguished from many telecommuters in that telecommuting is almost her sole work mode. About once a month she travels to New York to meet with Diebold and other employees, but the rest of the time she works at her home office. "The travel to New York is very important," says Marenghi. "It would be very hard if I didn't see the people I have to work with."

The great majority of telecommuters do not work at home full time. Kelly at Electronic Services Unlimited says "mix and match" programs that let workers and managers prearrange a schedule of days spent at home and in the office are the most common and popular telecommuting arrangements within corporations. "Typical-

ly, a contract to be at home X number of days is a formality adhered to infrequently," says Kelly. "In practice, as the manager and employee get comfortable [with the telecommuting arrangement], the schedule is adjusted."

Of the 10,000 telecommuters that Gordon estimates to be working at home two to four days a week, many are doing so on an informal basis rather than in structured company programs, he says. One myth Gordon feels must be dispelled is the idea that telecommuting only involves low-skill jobs that appeal to pregnant women or single mothers who can't afford to leave their homes. Telecommuting may, in fact, find more receptive audiences among higher skilled workers who, for one reason or another, prefer to work at home.

"The personal computer creates an explosion of opportunity [for telecommuting]," asserts Gordon, who says that as more jobs depend on personal computers, the responsibilities lend themselves to mobile working conditions. "Why should someone get dressed up and travel to an office to sit at a computer?" asks Gordon.

Not all telecommuting programs have had success. Recently, eight workers filed suit against their employer, seeking reimbursement for lost benefits.

But one critic of telecommuting sees few benefits for workers. "With telecommuting, people who have little control over their work are put in a position where they have even less," warns Lenny Siegel, coauthor of *The High Cost of High-Tech: The Dark Side of the Chip*. "Telecommuting tends to be exploitive if there are no guarantees, especially for clerical workers, because it puts more power and information in the hands of management," says Siegel. "Maybe it's better than nothing, but the real solution would be to provide things like child care and transportation."

Transportation problems are often cited as an important justification for implementing a telecommuting program. Many observers point to the oil shortage crisis in the early 1970s as the event that sparked interest in telecommuting among companies and individuals looking to conserve fuel and transportation costs. While fuel shortages have abetted for the time being, there is still considerable concern among city planners and other government officials over the threat of overpopulated cities and limited space for new office buildings and highway access.

In Southern California, for example, "there aren't going to be any more highways built," says Paul Edwards, who serves on the Technical Advisory Committee to the Regional Institute of Southern California, studying and promoting telecommuting programs. The organization has a goal of seeing 12 percent of the office workers associated with state government jobs participating in some kind of telecommute or telework program by the

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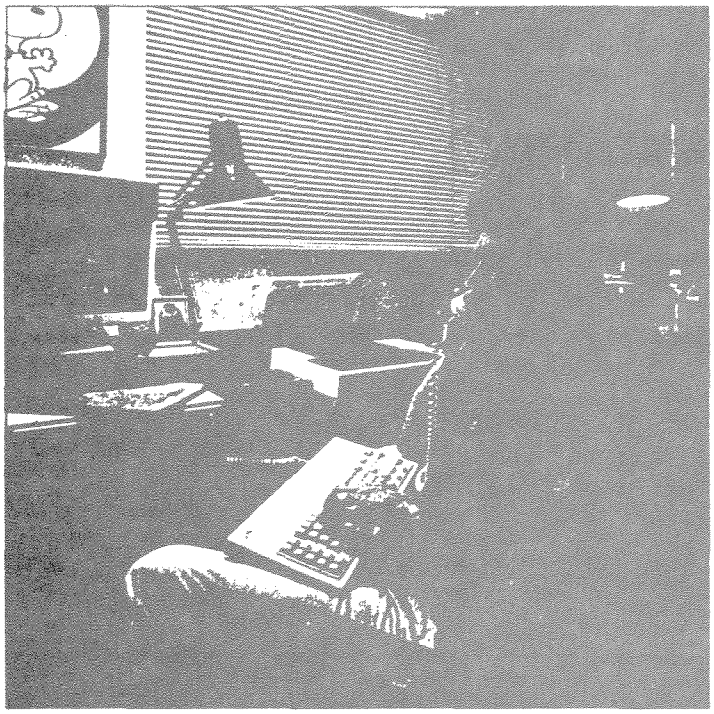
year 2000. Telework is distinguished from telecommuting as work done at a remote location that doesn't necessarily involve or require computer equipment.

Edwards is a frequent lecturer on the subject of telecommuting. He and his wife, Sarah, have been researching telecommuting for the past five years from their home, in Sierre Madre, California, and have coauthored a book on the subject, *Working From Home*. "We want to help professionalize the image of 'electronic cottagers,'" says Edwards. Such workers often have trouble getting business loans, health insurance, and other amenities employees of large businesses take for granted, he says.

"We call working at home the 11th 'megatrend,' the one John Naisbitt [author of *Megatrends*] overlooked," says Edwards, who feels there is a new phenomenon in American business, based on the concept of the "networked corporation." The networked corporation is one that maintains a small core staff of full-time employees and farms out manufacturing and other jobs to contract workers and organizations with a cadre of mobile workers with flexible work schedules.

Edwards agrees with others who say telecommuting is not for everyone. His research indicates that about 15 percent of the work force in the United States is favorably disposed to working alone or independently. "These are the people who keep their office doors shut or who actually are less productive when forced to work in teams," says Edwards.

At the other extreme, also about 15 percent, are people who by nature are collaborators, and inherently poor candidates for telecommuting. Interestingly, Edwards says some of these people do find satisfaction in a home business, where they might have frequent contact with suppliers, contract workers, and others. In between these two extremes is the bulk of the American work force, many of whom are perfectly acceptable candidates for a properly implemented telecommuting program that includes a mix of regular time in the office as well as at home.



"The results so far are good," says Pacific Bell's Rick Higgins of the company's telecommuting program, which involves 70 employees working at remote locations.

"There are 10 million physically handicapped people in this country; as well as people who want to live in certain geographic locations, that employers want to hire," says Edwards.

Still, observers like NYU's Olson question whether any real telecommuting trend in corporate America is discernable. "The number of companies with formal telecommuting pilots is very, very small," says Olson. "The decision to telecommute is often made on the basis of constrained choices, not because someone 'wants' to work at home," she says.

Telecommuters like Hesse at Pac Bell argue to the contrary. They say not only was their decision made freely, but they've actually enhanced their career opportunities and potential for advancement. For example, working at home has let Hesse go to college days, where she is studying management, which she hopes will qualify her for a more advanced position at the company. "If I were a manager, I would encourage people to work at home because I know it works," says Hesse. "I would give the objectives, and they would send in the reports. It works for me; I prefer to be managed that way."

Although telecommuting has not really lived up to its frequent characterization as "an emerging trend," this doesn't necessarily worry telecommuting enthusiasts like Gordon. If telecommuting was adopted too rapidly, he says, most of the projects would collapse due to hurried, poorly planned implementations. "Corporations don't turn on a dime," says Gordon. "I'd be shocked if [telecommuting] took off."

"If by 1990, 5 percent of office workers are telecommuting, that will be an accomplishment," says Gordon. "It's simply a matter of how fast management gets comfortable with the concept and we get away from some of the common myths about telecommuting." □

Home work at issue

Sac Bee 1-26-86

8 ex-employees sue insurance firm

By Bob Shallit
Bee Staff Writer

When Cal-Western Insurance Co. asked some of its claims processors to work at home as independent contractors two years ago, more than a dozen leaped at the chance.

"They made it sound very appealing," said Sherry Sphar, who saw the Sacramento firm's program as an opportunity to stay home with her newborn child and still draw a salary.

But Sphar and seven of the other telecommuters now have charged in a lawsuit that the "home terminal program" was a "subterfuge" designed to allow Cal-Western to avoid paying benefits to its employees. The eight women also maintain that the company forced them to work under "sweatshop" conditions.

A spokesman for Cal-Western said the suit is "without merit."

The lawsuit is significant because it is one of the first in the nation dealing with telecommuting, the growing business practice of having employees work out of their homes using computer terminals connected to the office.

According to the lawsuit, the eight women were among some 22 workers who agreed in 1983 to give up their employee and fringe benefits in exchange for the opportunity to work at home as independent contractors.

The claims processors were told they could work their own hours as long as they met certain quotas, the suit says.

Soon after they started, however, the company changed computer procedures, forcing the claims processors to work as many as 14 hours a day, Sphar and other employees said.

"I was working 6 to 8 hours a day when I started," Sphar said. "By the last month, I was getting up between 5 and 6 in the morning and working until 8 or 9 at night, stopping only to feed my kids.

"My husband complained that he

See WORKERS, page C17

Workers

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never saw me except when I was sitting in front of my terminal."

Marilyn Harms, another participant in the program, said she thought it would be "great to stay at home" with her five children, but ended up working 13 hours a day. "I knew there was a problem when my son came up to me and said, 'Mom, I liked it better when you worked in an office because you weren't so crabby,'" she said.

The telecommuters said the company frequently changed its procedures for processing claims and "verbally harassed" the employees.

"They just said do more, more and more, and if we didn't like it we could quit," Harms said.

The firm also insisted that quotas be met even when its telecommuters were ill, they said.

When the processors called in to complain, they were told that "there must be something wrong with you because nobody else is having any problems," Spahr said.

According to the lawsuit, the telecommuters attempted to renegotiate their contracts with the firm, but were rebuffed. "We thought, as independent contractors, that we could negotiate a contract when our old one expired, but they wouldn't even talk to us," Harms said.

They eight women involved in the lawsuit resigned from their positions on Dec. 2.

Roderick MacKenzie, a Sacramento attorney representing the telecommuters, said the women never were treated as independent contractors because of the constant demands made on them, and they therefore are entitled to the benefits they gave up when they took their new positions two years ago.

He estimates that the amount owed the women is between $150,000 and $200,000.

In addition, the women are seeking punitive damages of $1 million.

"The company basically had them hooked," McKenzie said. "They made it sound like they'd have a better way of life and then changed the system, requiring more and more time."

Stephen Belikoff, general counsel for American General Corp., Cal-Western's parent firm, said the telecommuters were treated as independent contractors. His company "doesn't see any merit" in the lawsuit, he said.

"We saw (the program) as an opportunity for them to earn a good living under flexible circumstances," he said. "Many of them were making more money (as independent contractors) than they were making as employees of the company."

Sphar, who has since found a new job, said she still supports the concept of telecommuting, but thinks it works only when there is excellent communication between the employer and employees.

It also requires a highly motivated employee to do the work, she said. "When you go to an office, you have a supervisor looking over your shoulder, telling you when to take a break or when to go to lunch," she said. "Here you have to be self-motivated to get up in the morning and produce."

Friends and relatives sometimes fail to understand that the telecommuter has a job to do, she added.

"People think that because you're home, you're free to do whatever you want," she said.

The information society in California

Social factors influencing its emergence

Jorge Reina Schement, Leah A. Lievrouw and Herbert S. Dordick

The authors identify three elements which will influence California's future. First, demographic shifts in the state's population have altered California's ethnic and cultural foundations. Second, the state educational system does not seem prepared to train larger numbers for information work, especially members of its growing ethnic population. Third, almost half the state's workforce is now employed in information-oriented work, whether in the industrial, service, or agricultural sectors. The authors demonstrate that the interaction of these elements has profound implications for California's development.

Keywords: Information society; Social factors; California

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[1]Herbert S. Dordick, 'California enters the information society', paper presented at the Conference on State Telecommunications

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Dramatic social and economic changes in the USA over the past ten years have drawn the attention of scholars interested in information. Many suggest that the changes are computer-driven, and some refer to the emergence of an 'information society' in the USA.[1] Still others assert that this transformation is not uniform, but varies from region to region. Most agree that among the regions in the vanguard is the State of California.[2]

In this article, we consider paradoxical and non-obvious aspects and consequences of California's purported information society. We have attempted to gain a better understanding of the significant elements in California's development, and to isolate the dynamics of the relationships among them.

The term 'information society' has been applied to a wide range of social phenomena. In 1981 California governor, Edmund G. Brown, Jr, commissioned a conference to elicit policy recommendations for the future of California and its technology-intensive and education-intensive economy. The analysts who participated in the conference examined the fate of such an economy in an 'information age'. For purposes of discussion, we refer to California here as an 'informated-oriented industrial society', or more simply, an 'information-oriented society', because opinion on the subject is still divided. At this point, there is no consensus as to whether an information-oriented society represents a fundamental departure from the past, or simply an outgrowth of industrial society.

California as a model

We chose California as the subject of our analysis for several reasons. First of all, California is the most important economic region in the USA. Its gross state product, for example, would rank as the eighth largest among all gross national products in the world. California is ahead of all other US states in personal income, and has the largest state population in the USA (10.3% of the national population in 1979). California also has

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the largest concentration of scientists, engineers, and mathematicians in the USA.[3]

The top 500 corporations in California range in revenues from $42.9 billion to $9.7 billion, putting them among the wealthiest in the nation. Of these, 214 (42.8%) deliver information services or produce information technology.[4] Moreover, 67 of the state's 100 highest revenue-growth firms are corporations in these same fields. Nor do these figures reflect the dominance of Hollywood within the state. Only 11 of these information firms are part of California's fabled entertainment industry (2.2% of the top 500).[5]

California was also chosen because its educational system has had a strong influence on the state's economic development. At one level, the public schools educate children and prepare them for productive working lives. On another level, the university–industry relationship in California has cultivated a highly skilled, professional information workforce, and has helped redirect the state's educational resources away from the humanities and towards engineering and the basic sciences. The allocation of educational resources has been a critical element in the state's economic success.

The working population of California is another contributing factor. Along with concentrations of highly skilled workers, California has always had a large ethnic population. Today, Latino and Asian groups are experiencing unprecedented population growth. Shifting demographic patterns make the transition to 'information society' status even more complex, and more compelling to the observer.

Do these characteristics make California an information-oriented society? They seem to invite a simple explanation, but the elements that contribute to California's economy and society are not simple. Population, education, and the changing nature of work are the principal elements in California's socio-economic picture. Each presents special problems, and they interact with each other to make precise analysis quite difficult. However, a closer examination of each element is necessary if one is to judge California as information-oriented.

Population

The population of California is undergoing dramatic changes. In particular, birth rates among whites and blacks are dropping while the rate is increasing for Latinos, the state's largest group. In addition, the state is absorbing record numbers of Spanish-speaking immigrants from the rest of the hemisphere. Moreover, the stream of domestic immigration, from the north-east to the south and west is also changing the population picture.

Chinese, Filipinos, Koreans, Vietnamese, and Mexicans have, in that order, shown the largest percentage increases in group sizes.[6] Many of these are illegal aliens. Since neither the Canadian nor Mexican borders are effective barriers to entry into the USA, the presence of an illegal resident population makes accurate estimates very difficult. Furthermore, critics have argued that there was a significant undercount in the 1980 census, as there was in the 1970 census.[7] All of this creates great problems in knowing who actually lives in the state. Nevertheless, the best estimate of the current California population, as synthesized from all available sources, is summarized in Table 1.

The percentages in the table show the ethnic proportions, but do not give a sense of the direction of California's population growth.

Continued from page 64

Policies, Sacramento, CA, 21 October 1981.

[2]Jorge Reina Schement, 'The road to an information economy is paved with good intentions', paper presented to the Conference on State Telecommunications Policies, Sacramento, CA, 21 October 1981.

[3]*The Sixty-Mile Circle*, Security Pacific National Bank, Los Angeles, CA, October 1979; *California Statistical Abstract, 1979*, California Department of Finance, Documents Section, Highlands, CA, 1979.

[4]We define 'information industries' as those whose primary output is information. This group is strictly delimited and includes banking, finance, publishing, telecommunications, computer hardware and software, and entertainment.

[5]'California's 500 and California's 100' *California Business*, May 1981, pp 83–97.

[6]Franz Schurman, *The Other California* (no source available).

[7]*Counting the Forgotten: The 1970 Census Count of Persons of Spanish-Speaking Background in the US*, Report of the US Commission on Civil Rights, US Government Printing Office, Washington, DC, 1973.

Table 1. Estimated California population percentages, 1980.

	%	Number
Anglo (white)	57.0	13 487 919
Latino	19.2	4 543 770
Black	7.6	1 819 282
Asian/Pacific	5.3	1 253 987
Native American	0.9	201 311
Other (undetermined)	10.0	2 362 293
Total	100.0	23 668 562

Projections of future population distributions can be made by constructing age pyramids of different ethnic groups. When one does so, one finds that age proportions vary widely from group to group.

The age and ethnicity breakouts of the 1980 California popultion are summarized in Figures 1, 2 and 3 for whites, blacks, and Latinos, respectively.[8] As the figures illustrate, different parts of the age distributions are dominated by different ethnic groups. Whites comprise more than 80% of all Californians 65 years of age or older, while less than 9% of the same age group are Latinos. When Californians 13 years of age or younger are counted, however, the percentage of Anglos is about 60%, while the percentage of young Latinos is about 23%; Anglos have effectively bypassed the goal of zero population growth (ZPG) and blacks are rapidly approaching it. The Latino population, on the other hand, continues to grow. In fact, the most striking feature of the pyramids is the concentration of the Latino population under 25 years of age.

The largest population increases, then, are among minority ethnic groups – those who in the past have had the least job training, and the

[8]Comparable data were not available for Asians, and they have not been included in these figures.

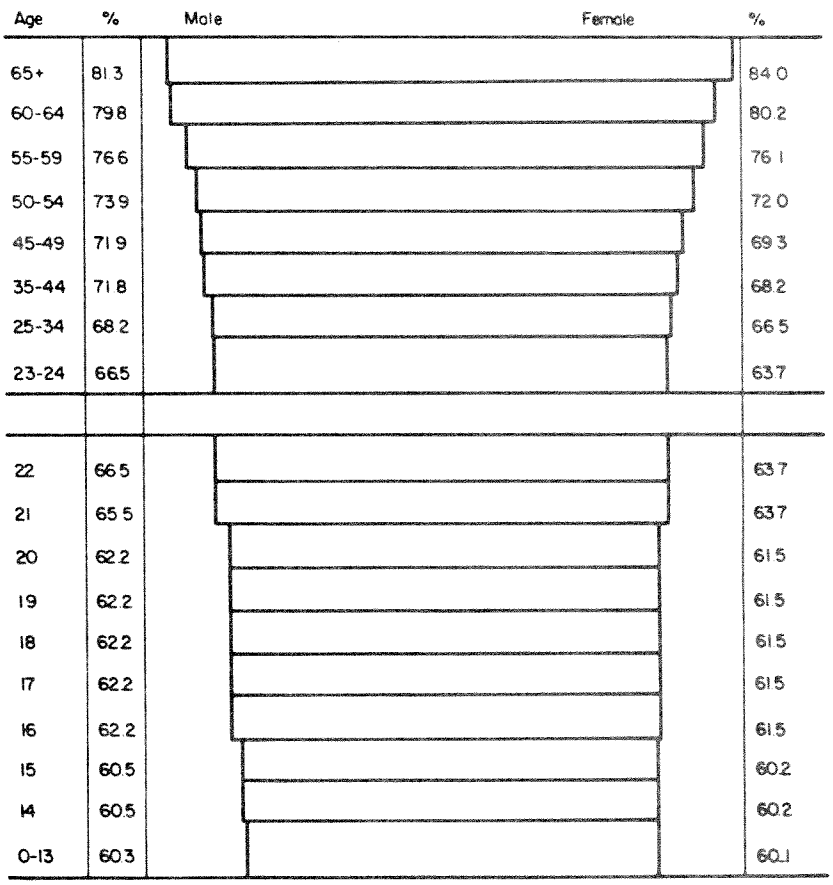


Figure 1. Age structure of California: whites (non-Latino).
The percentages are for all males or females in California for each age group (this applies also to Figures 2 and 3). The unevenness of the age group categories reflects the age group divisions in the 1980 census.
For example: 81.3% of all California males 65 years of age or older are white.

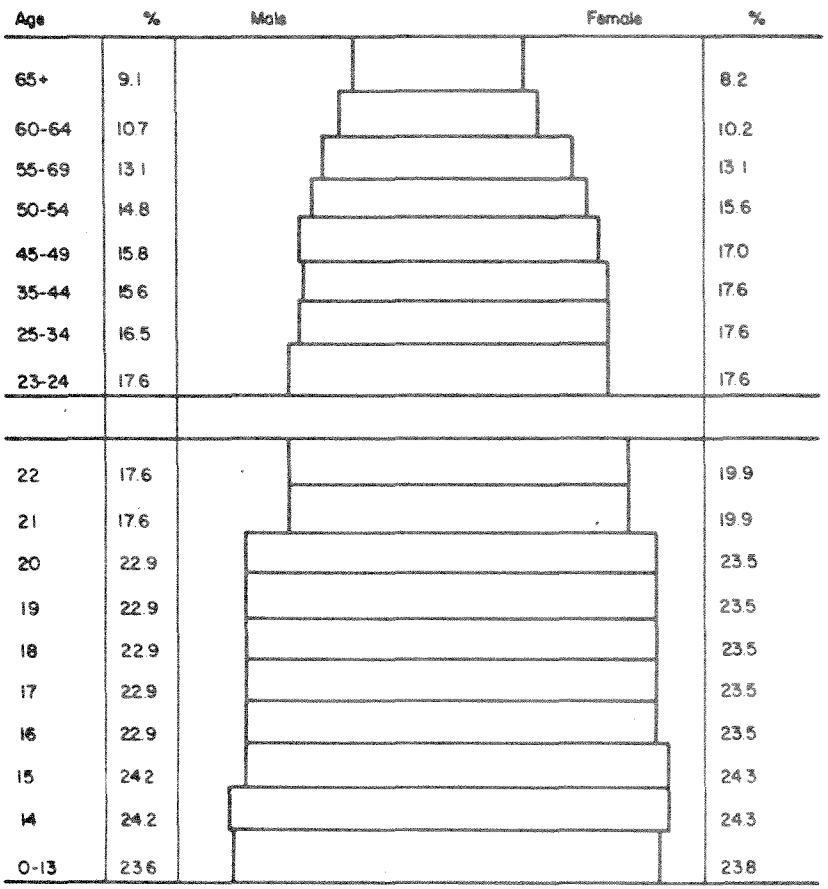


Figure 2. Age structure of California: Latinos.

least experience.[9] While it seems that there will continue to be a growing demand for skilled information workers, the employment prospects for Latinos and Asians with limited skills in English are uncertain. Certainly, they are harder to employ in jobs that require language proficiency, such as word processing. That these population shifts will have great implications for California's future seems fairly clear. Nevertheless, they have been largely overlooked in most discussions of information-oriented societies.[10]

Education

The emergence of an information-oriented society in California depends on the availability of an appropriately trained workforce. Given California's population trends, the supply of skilled workers largely depends on minority group success within California's educational system. The question arises: how do minority groups fare in the state's academic institutions?

The population pyramids indicate that more minority children than ever are entering the job training pipeline. Their educational experience is intended to provide them with the skills they need for work. However, there is evidence that minorities are differentially affected by the public educational system in California. For example, Meyer Weinberg[11] found substantial differences in educational attainment levels among ethnic groups. For every 100 white children entering first grade in California, 86 completed high school, and 47 went on to enter college. For corresponding samples of black children, 67 completed high school and 34 entered

[9]*The Condition of Education*, National Center for Education Statistics, Washington, DC, 1978.
[10]Wilson P. Dizard, *The Coming Information Age*, Longman, New York, 1982; Daniel Bell, *The Coming of Post-Industrial Society*, Basic Books, New York, 1973.
[11]Meyer Weinberg, *Minority Students: A Research Appraisal*, US Government Printing Office, Washington, DC, 1977.

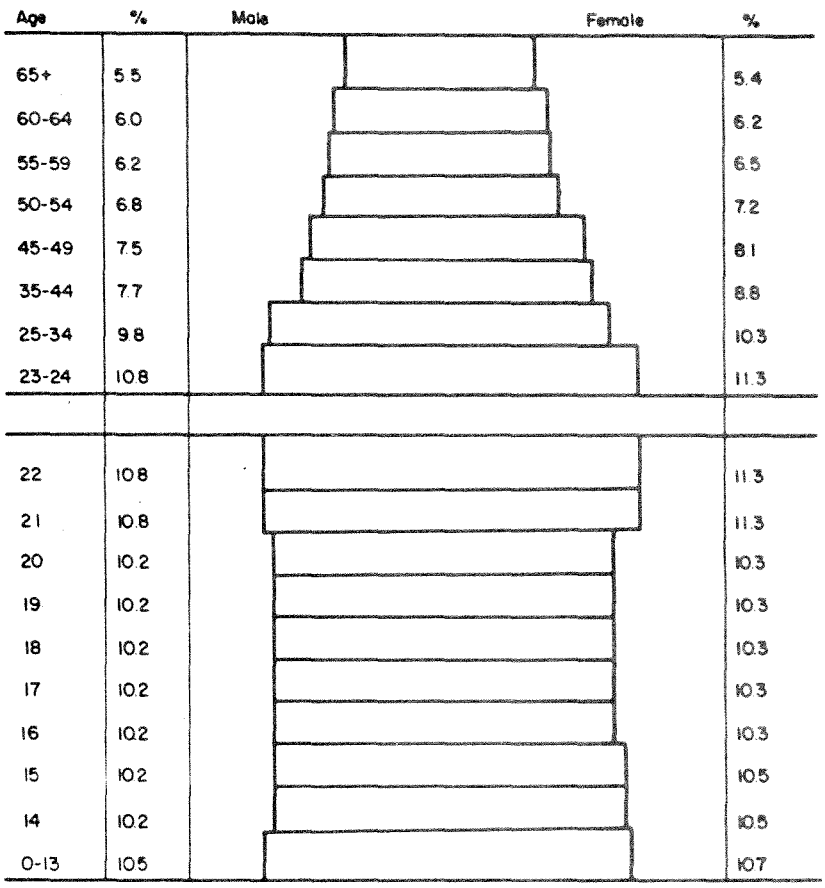


Figure 3. Age structure of California: blacks (non-Latino).

college. The rate for Mexican–American children was even lower. Of that group, only 64 completed high school, and 28 entered college (see Table 2).

This disparity is also evident in the 1980 California census. Of all Latinos over 25 years of age, 40% had only completed 0 to 8 years of school. Approximately equal percentages of all ethnic groups had completed high school, but college completion figures varied widely. 21% of whites over 25 had completed college; 13% of blacks; 31% of Asian/Pacific Islanders; and yet only 7% of Latinos had finished four years of college (see Table 3). At the university level, then, blacks and Latinos are particularly underrepresented on student bodies.

According to the *Digest of Educational Statistics*, in 1980 the median number of years of school completed was 12.5 for whites, 12.0 for blacks, and 10.6 for Latinos.[12] However, the same authors also indicate that minorities as a whole are showing a more marked increase than whites in median years of school completed, over time (Figure 4). This implies that some catching up may be occurring.

Nevertheless, continued ethnic imbalance can be inferred by enrolment and degree conferral profiles, which show that the traditionally

[12]W. Nance Grant, and L.J. Eiden, *Digest of Educational Statistics*, US Government Printing Office, Washington, DC, 1981.

Table 2. Grade completion per 100 entering first grade students in California by ethnicity, 1977.

	Enter:	Grade 1	Grade 8	Grade 12	College
Anglo		100	100	85.7	46.9
Mexican/American (Latino)		100	93.8	63.8	28.2
Black		100	93.7	67.3	34.0

Source: Meyer Weinberg, *Minority Students: A Research Appraisal*, US Government Printing Office, Washington, DC, 1977.

Table 3. Last year of school attended, by percentage and ethnicity, 1980.

Years in school	White (%)	Black (%)	Asian & Pacific (%)	Spanish origin (Latino) (%)
0–8	11.46	15.56	16.39	40.38
9–11	11.76	15.42	8.0	16.41
12	32.36	29.69	23.60	23.36
13–15	23.52	26.18	21.35	13.72
16+	20.88	13.13	30.59	6.09
Total	99.98	99.98	99.93	99.96

Source: US Census Supplemental Report, PHC80-S1-1, 1980.
Note: Columns do not total 100% due to rounding.

white-dominated technical and scientific fields are growing. The number of degrees conferred in the humanities, where minority students have tended to concentrate, is dropping (Table 4). At this point, it does not seem that minorities are shifting in large numbers to technically oriented fields.

The emphasis on technical education has been supported by a close and profitable relationship between California's universities and its technical industries. Universities are sources of new knowledge and creative vitality for information-oriented firms. They produce skilled workers in the form of students, consultants, or faculty who leave universities for industry. A frequently cited example is the relationship between Stanford University and the growth of the computer and software industries in the Santa Clara Valley.[13] Stanford's encouragement of faculty to become industry consultants has provided a model for other institutions suffering funding cutbacks. Consequent depletion of the academic ranks has been avoided in the past because California's universities have been able to recruit new and replacement personnel from other states.

This pattern is now changing. Significant salary differentials between academia and these industries, and prohibitively priced housing, are exerting their effects. It is increasingly difficult for the state's universities to attract and hold on to academic talent. Information industries have established a very beneficial relationship with the state's universities but have placed demands on the universities that rob them of their resources: these industries may be chopping down the tree to get at the fruit.

[13]Robert Howard, 'Second class in Silicon Valley', *Working Papers*, Vol 8, No 5, September/October, 1981, pp 20–31.

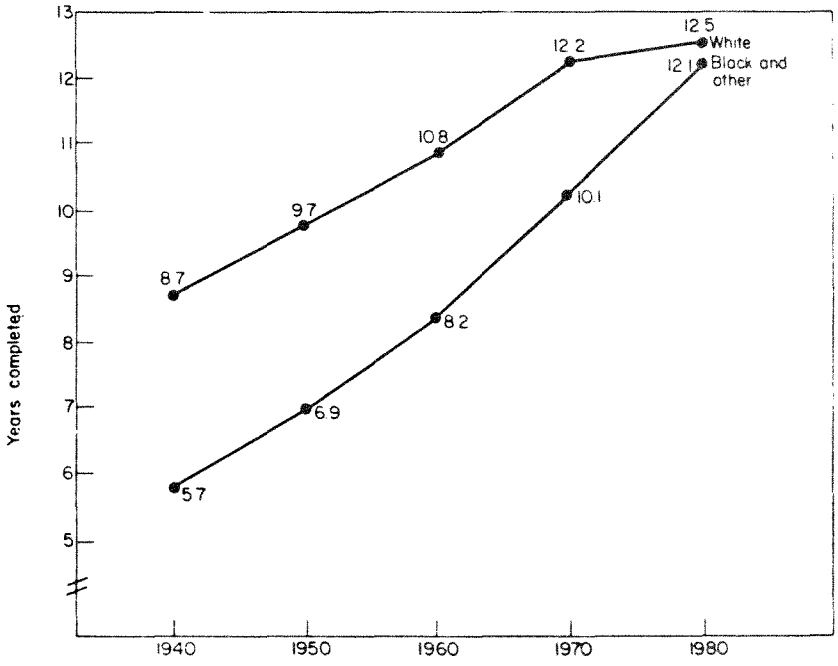


Figure 4. Median years of school completed by people 25 years and older, by race: USA, 1940–80.
Source: W. Nance Grant and L.J. Eiden, *Digest of Educational Statistics*, US Government Printing Office, Washington, DC, 1981.

It appears that two relationships will characterize California education in the future. First, the educational achievements of the state's minority children are likely to fall behind their Anglo counterparts. In the context of the state's minority population growth rates, the overall level of education of the population may well drop. This has great implications for the type of labour available to industry. Second, the lucrative relationship between industry and academia will continue, perhaps to the disadvantage of the universities. The depletion of academic ranks may jeopardize training programmes that prepare information professionals for the industry.

Information work

The third critical element in the analysis of California's future is the changing nature of work. Societies are often defined by the kind of work they engage in and deem valuable. Thus, we can sense the importance of information-related work by separating out and measuring information-based occupations with respect to California's labour force as a whole. Estimates of the size of the information workforce depend on a careful definition of information work. Our estimates are based on a behavioural, taxonomy-type scheme of work tasks.[14] Using this scheme, approximately, 48% of all workers employed in California in 1980 can be identified as creating or manipulating information for their principal job task. Another 3% produced or maintained information technology.[15] Job descriptions for these workers range from secretaries to telephone installers, to teachers, to artists, to engineers, and clergy.

Admittedly, the way in which the state collects employment data makes it difficult to identify information workers. Under the state's present categories, for example, it is difficult to separate manufacturing workers in information-oriented firms from manufacturing workers in industry as a whole. New classifications will have to be drawn up before any detailed analysis of the 'information sector' can be conducted.

Given the presence of a large percentage of information workers, state employment projections do not predict increased information-related employment in the short term.[16] This may indicate that there is some sort of natural 'ceiling' on the demand for information workers, or it may mean that the information sector is suffering from the same economic problems as the rest of the economy. For now, we prefer the former interpretation: tools like the computer are likely to reduce the labour-intensiveness of information work, limiting the number of people required for such work.[17]

A pattern related to the labour-intensiveness of information work is also worth noting. There is evidence that the production and distribution of information within firms are being subdivided into smaller components

Table 4. Percentages of degrees conferred and projected, total US, by discipline and degree.

	BA			MA/MS			PhD		
	1964–65	1975–76	1986–87	1964–65	1975–76	1986–87	1964–65	1975–76	1986–87
Social sciences	19.8	23.1	22.8	16.0	16.0	13.8	16.9	21.5	22.9
Humanities	16.0	15.1	13.8	12.1	9.6	9.2	11.2	12.4	11.8
Natural sciences & misc	64.2	61.8	63.4	71.9	74.4	77.0	71.9	66.1	65.3
Total	100.0	99.0	96.0	100.0	99.9	99.0	100.0	100.0	100.0

Source: Yearbook of Higher Education, 1981–82, 13 ed, Marquis Academic Media, Chicago, 1982.
Note: not all columns total 100% due to rounding.

similar to the way in which industrial tasks are subdivided on assembly lines.[18] Increased productivity per worker has become an important goal in information-oriented firms, and they have chosen the path of their industrial forbears – division of labour.

The emphasis on productivity in information work splits the information workforce in two. On one side are the highly educated, highly paid creative professionals allowed to work according to their personal lifestyle. On the other side are those who merely carry out repetitive, fragmented tasks, under rigid supervision and control. Unlike traditional paths in other industries, where workers might advance from the shopfloor into management, the two information groups are almost completely separate – bimodal. There are few chances to move up from information handling and assembly to creative professional positions.

Silicon Valley demonstrates the implications of bimodal employment demand on the population. The creative, well-paid jobs are filled almost exclusively by white males. Lesser paid assembly work and routine information tasks are performed by women, usually Asians and Latinas.[19]

To summarize then, information work has become an undeniable part of California's employment picture. Today, most people make their living doing this kind of work, and the firms they work for are among the largest in the state. Their demands are for highly educated information workers on one hand, and for 'assembly line' type workers on the other hand. In the mean time, California's economy has shifted toward information production and distribution, and the changing nature of work is at its heart. Work frames the material context of people's lives, so information work is likely to have social repercussions beyond the workplace.

Preliminary interpretations

The interaction of population, education, and information work is evident. Moreover, the economic output of California is actually changing. California has been an agricultural and industrial giant, and is now an information giant as well. Just as agriculture and industry created demands for particular kinds of work, so have information firms created specialized labour demands. They require staffs of information-producing professionals, supported by information-distribution infrastructures. Each job requires a corresponding level of education, ranging from advanced graduate work for scientists, to more elementary language skills for transcribers.

The burden of providing these skills rests on the state's educational system, which has been successful in preparing white males for professional roles, but less successful in preparing minority students. The system, at the public school level, finds itself unprepared to train a rising tide of ethnic students. At the university level, the depletion of academic talent jeopardizes the training opportunities for all Californians.

As the numbers of Latinos, Blacks, and Asians grow, their presence will alter California's culture and economy. Minority workers will find that most of the job opportunities require information skills, but they are likely to be the least prepared for such work. This training shortfall could be disastrous for a state economy dominated by information-oriented industries, and a political system predicated on equality of opportunity for all.

[14]Information workers are defined as performing a set of behavioural activities, and are subdivided into five groups: information producers, information recyclers, information maintainers, information technology producers, and information technology maintainers.

[15]*Ibid.*

[16]*Projections of Employment by Industry and Occupation, 1980–85 (California)*, report prepared by the State of California Employment Development Department, State of California, Sacramento, CA, 1979.

[17]Stanley Aronowitz, *Los Angeles Times*, 3 October 1982, 'Opinion' section, p 1.

[18]Barbara G.F. Cohen, Michael J. Smith and Lambert W. Stammerjohn, 'Psychosocial factors contributing to job stress of clerical VDT operators', presentation to the Office Automation Conference, American Federation of Information Processing Societies, San Francisco, CA, 5–7 April 1982.

[19]Howard, *op cit*, Ref 13.

Thinking about the future

We have identified patterns of interaction among population, education, and work, but there remains the problem of interpreting the patterns. Social changes translate themselves into new demands and into new questions, which can provide the structure for a systematic analysis of subsequent change. Thus, further analysis of California as an emerging information-oriented society will have to address the following questions:

- Can California produce a highly skilled information workforce? In particular, will ethnic minorities, who are comprising an ever larger part of the state's school-age population, be taught the kinds of skills, training, and education that an information-oriented economy needs?
- Can creativity and innovative thinking be developed as a resource? Can the state, for example, take an active role in the search for affordable housing, so necessary to attract creative professionals?
- How will the university be defined in an information-oriented society? Whether as the last stage in an educational pipeline, or as an incubator for innovative thinking, a healthy university system is an essential ingredient for a healthy economy. What role will the state, as chief funding agent, choose for its academic institutions?
- What is the meaning of the democratic process in an information-oriented society? A society that equates information with power must include information as an essential component of the democratic process, and do everything possible to ensure equality of information – and information skills – among its citizens. Is there more to California's responsibility than simply providing industry with a well-trained workforce?
- Is there a new information-oriented society emerging in California? Clearly, there is an information-orientation to its industry and workforce. Yet manufacturing industries and agriculture remain as critical contributors to the state's economy. Moreover, many of the work patterns crystallizing within information industries are direct outgrowths of industrially organized work. Does California's information-orientation, therefore, represent a fundamental shift in society's structures, or an evolution of those wrought by the industrial revolution?

Finally, it is important to realize that social change on this scale should remind us of the 'roads not taken'. Policy makers who look to California as an example of the social benefits brought about by a shift to information work, should also recognize the social price that is being paid on the way.

WALL STREET JOURNAL 6-23-86

Whir, Click, Thanks: Merchandisers Turn To Electronic Salesmen in 24-Hour Kiosks

YOUR MONEY MATTERS

By Rifka Rosenwein
Staff Reporter of The Wall Street Journal

Karen Shapiro searched for a gift for friends recently in the Kennedy Airport shops but found nothing to her liking.

Then the 28-year-old New Yorker noticed an unusual electronic terminal in a waiting-room kiosk. The machine takes credit-card orders for gift merchandise that can be shipped within a day.

"I'd never done anything like this before, but this was easy," says a delighted Ms. Shapiro, who shelled out about $50 for bags of pistachio nuts and peanuts. Adds Theresa Merloni, a Los Angeles resident who spent $145 for a watch and a teddy bear: "I think it's fabulous. It looks like the future of shopping to me."

After revolutionizing retail banking, electronic terminals are drawing a bead on retail merchandising. In thousands of places across the U.S., computers are popping up to do more or less the work of human salesmen.

'The Perfect Salesman'

"The machine is the perfect salesman," says Richard Hosp, the senior vice president for marketing at Murjani International Ltd., New York, which has begun 24-hour service via computer at its Fizzazz apparel store on trendy Columbus Avenue in Manhattan. "It smiles all the time, it says good morning, it has almost perfect knowledge of the inventory."

Maybe so, but the picture isn't all rosy. Many consumers are as put off by electronic clerks as others are enthusiastic. As stores that run with little or no human help spread, workers lose job opportunities. And established stores and mail-order houses are starting to lose sales growth to upstarts built around computers.

The gadgets, cousins of the ubiquitous automated teller, include simple "informational" models that merely promote products and more-complex "transactional" devices that take credit-card orders.

Growing Numbers

Only 15,000 machines were in use in 1985, and they included only 1,000 transactional terminals, estimates Thomas Rauh, a San Francisco partner in the management-consulting group of Touche Ross & Co. But demand is accelerating rapidly. By 1990, Mr. Rauh predicts, 70,000 informational and 30,000 transactional units will be in place, as vehicles for $2 billion to $3 billion in annual sales.

"These systems will foster a restructuring of how products are sold and distributed," Mr. Rauh says. For shoppers, he adds, a computer seems to "carry more weight than a person does (and) is so much more exciting—a lot of retailing is theater, presentation, excitement."

Stores say the terminals improve service and inventory control while cutting payroll costs and retail space. In extreme cases a terminal can replace a store.

Consider the Express Shop USA kiosks run by Amtech Inc., New York, at airports in New York, Los Angeles and Washington. Touching a screen, a user gets 20-second glimpses of 92 products, such as Gucci watches and Lindt chocolates. Each video ends with an order form; to buy, the shopper inserts a credit card and types in shipping information.

Making Money

The kiosks, linked to a warehouse, cost between $75,000 and $150,000 each. "I need two and a half sales a day from each one to break even," says Keith Greenberg, Amtech's president. Sales now: 10 to 12 a day per kiosk (average tab: $75), "far exceeding" break-even.

> **'THE MACHINE** is the perfect salesman,' says one marketer. 'It says good morning, it has almost perfect knowledge of the inventory.'

At 10 in-store test sites around the U.S., Interco Inc.'s Chicago-based Florsheim Shoe Co. unit is using terminals to help hard-to-fit customers, who can use them to order any size of any Florsheim style.

E. & B. Marine Supply Inc. has invested $250,000 in electronic kiosks. Gerald Bench, the president of the Edison, N.J., maker of boat accessories, says kiosks are often feasible where stores would fail, especially in "highly seasonal areas where you don't want to be inventory-intensive."

Murjani's Mr. Hosp says the Fizzazz terminal on Columbus Avenue "adds to the theater of that store" and extends service to 24 hours. Future kiosks will be placed at high-traffic sites far from apparel stores, including colleges, old-age homes, travel centers and industrial parks.

Pitching Hair-Care Products

In the past year Intermark Corp., a New York consulting unit of Howard Marlboro Group, has set up informational terminals for American Motors Corp. and Procter & Gamble Co.'s Richardson-Vicks unit, among others. For Vicks's Pantene hair-care products the terminals deliver the entire sales pitch, replacing personnel who were often poorly trained or absent.

The Vicks machine recommends a hair-care regimen "in such a way that the customer feels it is tailor-made," says Lili Mahlab, Intermark's director of sales and marketing.

Still, many shoppers dislike nonhuman salesmen, which have flopped mightily in some places. Donna Weinzimer, for one, isn't impressed by the Fizzazz computer. "It takes the joy out of shopping," declares the New York advertising executive. "You come home from work, you want to talk to a person, ask how something looks."

On a recent night, a straw poll of about 15 New Yorkers playing with or staring at the machine found not one willing to use it to make a purchase. (As it happens, the machine was soon knocked out of service by vandalism.)

If Fizzazz fizzles, it won't be alone. Last year, CompuSave Corp. of Irvine, Calif., placed 450 transactional terminals in supermarkets in upstate New York, Pennsylvania, Ohio and Indiana. Though it offered 3,000 items at discount in rural areas without discount stores, sales were so poor that CompuSave this year filed for Bankruptcy Code protection from creditors.

The Value of Touching

Many prospective customers were afraid to try something new, says David Young, CompuSave's president. Also, they were skeptical because they "couldn't touch and feel the product."

In 1983 By Video, along with McKesson Corp., a San Francisco distributor of packaged goods, placed 80 transactional terminals in the San Francisco area, offering more than 800 products. The terminals averaged 100 users a day, but only 28% took all the steps needed to "shop"—and only 2% actually bought anything.

Then, in 1984, By Video and Avon Products Inc., a New York cosmetics maker, tried to catch the attention of working women with kiosks in office buildings, shopping malls and supermarkets. Again, results were dismal.

Ms. Mahlab of Intermark says consumers aren't yet eager to "stick their valuable credit cards into these machines," preferring informational terminals.

The retailer using terminals must "always ask what the benefits are to the customer over traditional shopping," says Touche Ross's Mr. Rauh. One problem for customers, he says, is "the lack of immediate gratification—to compensate for that, you either have to lower the price or increase the convenience."

(20)

PERSONAL COMPUTERS

Waving to the Future From the Electronic Cottage

By ERIK SANDBERG-DIMENT

PERSONAL computer communications, its early proponents claimed, would open up a new world of telecommuting and instant information resources for all of us. Soon the nation would be abuzz with people working happily and conveniently in their homes. Rather than wasting hours weaving through traffic traveling back and forth to work, they would simply walk over to their home computers and set about their business, still dressed in pajamas and robe and leisurely enjoying a second cup of coffee.

As one of the seemingly few people to be actively engaged in telecommuting — I visited the newspaper office just twice last year — I can attest that the cozy picture painted by the pundits does not portray quite the way it works. To all those people who say, "Gee, I'd like to work away from all the pressures and interruptions and deadlines of the office," I answer that life in the electronic cottage is as chaotic as it is anywhere else.

Yesterday was a typical example. I dragged myself out of bed in the morning, put the coffee on, shaved and prepared to face my daily commute.

My study is in what used to be the machine shed next to the barn. (By the way, you can forget about working in the house itself if you have a spouse, three kids, two cats and a dog.) The commute is 300 feet, which isn't bad, although it's a trip not likely to be undertaken clad in only a dressing gown when the temperature is minus 2 degrees, as it was that morning. But that commute was not the commute for which I was preparing. Rather, I was getting ready to drive my children to school.

We used to belong to a car pool, but since I don't "work," which is to say I don't "go to work," it was inevitable that a couple of times a week, just when I was on deadline, one of the other parents who had to go to work would ask me to fill in. After all, the reasoning apparently went, if I started work the better part of an hour late it couldn't possibly matter much. That's the perceived beauty of telecommuting, you see: Even if you regularly put in a 12-hour day, presumably you don't really have to, because you're not actually working as in actually having to go to work.

Anyhow, with the kids delivered to school I headed over to the study by way of the cow barn. The particular route is not an integral part of telecommuting; I just happen to like real milk, creamy and rich, from Jersey cows. Milking the bovines twice a day also plays an important role in my work schedule, in that it adds a pace, a regularity, to my day in the same way that punching in on a time clock or having to pass the boss's door on the way to one's desk does.

On this particular occasion, however, the water line to the barn had frozen. Now, a cow drinks more than a teen-ager eats. Twelve buckets later, Ginger and Butterscotch had finally slaked their thirst. Half an hour later I washed the milking equipment and headed over to the computers.

Flicking on a Macintosh and a PC Designs, I began to look through some software for possible review. Ten minutes had elapsed when the telephone rang. The caller was an irate UNIX fan upset over my previous week's column. He felt I was wrong in hypothesizing that UNIX might finally, possibly, make the grade as a popular operating system when more powerful personal computers entered the marketplace a couple of years hence. UNIX could make it right now, he assured me, were it not that the consumers are too dumb to deal with it.

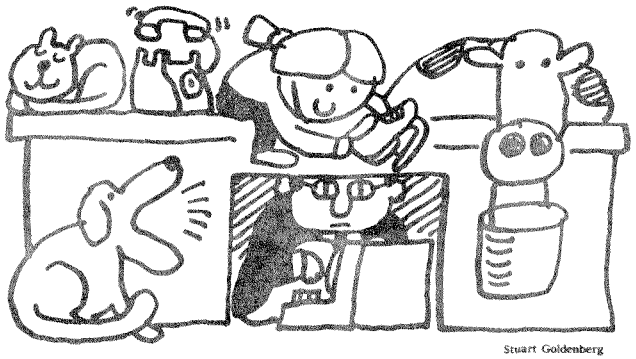
This was followed by six calls from public relations firms and software publishers enlightening me concerning six totally earth-shaking software packages that would completely reshape civilization.

I had finally made my way back from the insistently ringing telephone to the computers when my secretary arrived. Switching on her Leading Edge Model D — there is more computing power in my little study than that available to the combined Allied forces in World War II — she took over the role of telephone call interceptor.

Three real working hours later I grabbed lunch at my desk and went through some of the mail. In truth, these particular activities were undertaken not at my desk, but rather in an easy chair beside it, and were accompanied by a Brahms piano quintet, a definite improvement over office elevator Muzak. Score one for telecommuting.

In the stack of merger, bankruptcy and personnel announcements from computer companies, one thing was missing: my paycheck. My writing is transmitted to its destination almost instantaneously, electronically. The pecuniary response is not so fast, and usually the missing status of the check is attributed to a "computer problem," which I suppose is ironic. In any event, there is no way for me to telecommute down to the payroll department to vent my frustration, and all the telephone lines to that particular department seem to have been disconnected long ago.

Phone in hand, I turned to answering some of the morning's intercepted calls. Then it was back to doing a rewrite on an almost completed column. I managed to put in another couple of hours scribbling and, just before the kids came home, handed the pages to the secretary to enter into the computer. I'll edit on screen, but I won't compose on a keyboard, either a computerized one or the kind attached to a typewriter.



Stuart Goldenberg

Genevieve and Tanya wanted to go ice-skating down at the pond. The family rule is that an adult has to check the ice first. Also, the cows needed milking again.

When I got back to the office it was dark, time to get busy making calls to the West Coast after lunch crowd. That is another nice thing about telecommuting: There are no time barriers. Even in the middle of the night there is always someone somewhere in the world awake and working and hoping you are too. It's like a round-the-clock office. Then again, I suppose there are some people who wouldn't want to have anything to do with a 24-hour office. Telecommuting is not for those who have never heard the line, "I knew you'd probably be up," or those who faint at the sight of a telephone bill just short of a small country's gross national product.

At last it was dinnertime. At the kitchen door I was greeted by the mingled aromas of a joint of venison from the backwoods, steamy potatoes, homemade butter and red cabbage. The repast was followed by a quiet period of repose before a blazing fire.

Now here, according to the pundits of the electronic cottage, I should have been on line "chatting" with other computerists through electronic bulletin boards. But who wants to look at yet another screen after spending a day in front of monitors? Besides, there was a deadline still to be met.

From nine till midnight it was so quiet that it seemed not a creature was stirring, not even a mouse — one of which occasionally sneaks in from the winter cold to the shelter afforded by my study. But tonight there was only the click-click of the I.B.M. XT's keys, and then at last I was finished editing the column. I called up the communications program Crosstalk XVI, struck "10," waited for my computer to call the one in New York, and then typed in the file name "TS1-216.155." Five minutes and 29 seconds later the story was on my editor's desk. He, on the other hand, was probably by then, wisely, out at some reporters' hangout.

Walking back to the house in the crisp moonlit night, I was reflecting on how I have come to take telecommuting for granted. Still, I can't help but feel that it's not the wave of the future so many prognosticators seem to feel it is. Most people would probably miss the real office too much. Besides, have you ever asked your computer, "What are you doing after work? Do you want to go out for a drink?"

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Roderick L. MacKenzie, Esq.
(Counsel for Telecommuters)

STATE LIBRARIAN

Statement before the
Assembly Utilities and Commerce Committee
of the California Legislature

THE FUTURE OF ELECTRONIC COMMERCE IN CALIFORNIA

June 25, 1986

GARY E. STRONG
State Librarian of California

Assemblywoman Moore, members of the Committee, ladies and gentlemen. I am Gary Strong, the State Librarian of California. It a pleasure to have the opportunity to appear today before this committee in informal hearing to look at the future of electronic commerce in California. It is a policy area of great concern to the California State Library and, in turn, to the users of libraries in the state of California. I would like to begin by providing you with some background on the State Library.

The California State Library was established in 1850, by the first Legislature and has served the information and library needs of the Legislature and of state government over its one hundred thiry-six years of service. In 1905, the State Library extended its services to the citizens of the state and in 1909 began to actively develop public library service throughout California. Today, our responsibilities extend to areas of inter-library cooperation and resource sharing, which link citizens wherever they may live with the library and information resources of all types of libraries in California and across the nation.

In meeting its mission, the State Library has moved forcefully to employ the benefits of technology in opening access

to these vast resources. A brief recap will demonstrate this involvement. First, many libraries have moved to automate their catalogs and indexes. The records of millions of books and periodicals are available on computer terminals from the data bases of the largest bibliographic utilities in the nation. The California Library Services Act joins this program by providing state assistance to libraries which list their records in this way. Electronic mail is only the latest method by which libraries requesting books and journal articles from each other. Developments in telecommunication and telefacsimile are being watched closely for their potential to enhance this resource exchange.

On-line computer data bases, not unlike CompuServe or The Source, are used daily by libraries across California to meet the needs of citizens, students, faculty and researchers. In fact, the California State Library now searches over four hundred data bases regularly. In 1973, we began searching one system with just twenty-five data bases. We are fortunate in that many of these data bases originate here in California and are a part of the electronic economy of the state.

Many libraries are experimenting with providing users access to their local automated systems through home computers. Perhaps the most significant example of such access is Maggie's Place in Colorado Springs. Several hundred home computer owners access the computer files of the Pike's Peak Public Library to obtain information not only on library issues, but on a broad base of local community issues as well. While not as well developed in

California as we might like, there are examples. The San Bernardino Public Library maintains a community bulletin board that may be accessed by home computer users. The State Library has invested in a program of adult computer literacy in pubic libraries over the past three years. A number of other libraries are actively involved in the implementation and use of community cable television.

In 1984, the California State Library sponsored with the Graduate School of Library and Information Science at UCLA, a conference on "Libraries and the Information Economy of California." Drawing from the public and private sectors, the conference addressed a number of the issues that await policy formulation today. Over the past two years, I served as a member of the Commission on Freedom and Equality of Access to Information. Again drawing from the public and private sectors, the Commission completed its work this spring and our report speaks to a number of the same issues addressed by the staff to this Committee.

The State Library has joined with the University of California in several areas of telecommunications research. Our joint packet radio development and State Library's use of UC's MELVYL on-line catalog are but two areas that we are exploring. These ventures have been important in making sure public funds address broad areas of coordination.

Clearly, the technology is now available to help people find out what information is available and to have it delivered. It is

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the policies to promote the public interest that are lagging. The Committee should be congratulated for having the foresight to examine needed public policy in these areas. I am not convinced that the Federal government will or even if it should address such issues. Here in California, we have a large share of both the public and private generation of such services, and we must move to protect these interests.

I would now like to raise several specific concerns as you consider policy formulation. First, I do not pretend to understand nor can I offer an economic projection for the growth of electronic commercial services in California. What I can observe, however, is that there is much activity and that libraries are often called upon to provide assistance in that development. Libraries across the state can and do provide invaluable information to support both product development and the business of introducing and marketing new products. This activity is not only by large companies. Much of the innovation takes place in small companies -- two to five enterprising individuals with an idea to be developed. Local libraries help provide the necessary information to bring their ideas to reality. The development of the Silicon Valley Information Center at the San Jose Public Library under a grant from the State Library is an excellent example of this support.

A diverse marketplace exists in California already. That market provides service not only to California, but nationally and internationally. Public policy must continue to address the

health of that market, through incentives for development, but also for protection of the intellectual property that is developed. While much of the protection for intellectual property falls to the federal jurisdiction, I believe that the state should carefully follow these issues and be sure that they address the concerns important to California.

While it is important to encourage a healthy private sector environment for product development and support in electronic commerce, it is equally important to support a healthly public agency environment as well. Libraries, universities and colleges must have the necessary capital to invest to ensure that information has broad public availability in California. Coupled together, the public and private sectors can support a diverse marketplace for information.

As State Librarian of California, I am particularly concerned in two areas. First, the area of privacy is of highest importance. Legislation such as ACA9 is important for protecting our individual and institutional privacy as a society. I encourage the Committee to continue to examine public policy in this important arena. The issues of intellectual property, that I mentioned earlier, also deserve continued attention.

The other important area is that of equality of access to information and to the electronic systems which will carry information in the next few years. While I enthusiasticlly support the concept of value added services, I also must support the basic need for some level of publicly funded access to

information. And, I would advocate that the public libraries serve as a base for such universal access for all Californians. Our public libraries are already well organized for sharing resources with the basic support provided under the California Library Services Act.

However, it is not enough to provide for delivery systems. For Californians to be full participants in this new economy will require substantial training and education. The rate of adult illiteracy in basic reading skills is staggering. But the rate of information illiteracy in accessing and using more sophisticated information far exceeds this basic challenge. If we are to bridge the growing gap between the "information poor" and the "information rich," the Legislature must address adequate public support to meet these potentials. I suggest an approach which does not require making every Californian information literate. Rather, I feel it is mediated access through libraries that is realistic and appropriate. Frankly, I perceive the libraries and their clientele can accept the value of the new technologies. ~~Realize~~, The problem lies in equality of access, particularly in capitalizing the initial investments necessary to fully participate and take significant leadership. We must consider the fact that if we do not provide such capitalization, a citizen may be able to access virtually every other electronic service, except for that held in the library. The body of government information and library resources supported through her/his tax dollar will not be readily available.

GF

To summarize, the three policies I recommend are:

1. Protecting individual and institutional privacy.

2. Protection of intellectual property rights.

3. Provision for public libraries to be the base of access to databases, particularly those created with the assistance of tax funds.

I encourage the Committee to continue its examination of these very important public policy issues. Your concern in balancing the potential of electronic commerce between the interest of the public and private sectors will continue to be very important. The California State Library is ready to assist in any way possible.

Thank you.

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Gary Strong — State Librarian

Appointed State Librarian by Edmund G. Brown Jr., in September 1980, and reappointed by George Deukmejian in September 1984, Gary Strong serves as Chief Executive Officer of the California Library Services Board and Executive Director and Ex-Officio Member of the Board of Directors for the California State Library Foundation.

Strong is also chairperson of the Chief Officers of State Library agencies and has served as chairperson of the Legislation Committee of the American Library Association.

His testimony at the recent Assembly hearings on electronic commerce caught our interest and prompted this interview.

Gary Strong

v Vic Krohn
N Editor-In-Chief

CN: Last month *California Computer* covered Assembly hearings which sed the issue of electronic commerce in the State of California. You had some very significant comments and recommendations to make at those hearings, some of which directly related to the potential role of the library system in the emerging information age economy. Could you expand on those comments for us.

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STRONG: For many years the library in California has served as a basic information resource, equalizing access to print information, primarily. I think as we move into the new economy our citizens are going to require substantial training, education and understanding of what electronic technology is all about. Not just the hardware side of it, but what the potentials are for transferring information directly into ones home or directly into ones workplace.

It is especially going to make significant change in how people function in the work environment.

I'm particularly alarmed and concerned about the rate of adult illiteracy just in basic reading within the California population. As we look at that as an indicator we see inability to read at very basic levels — write a check, fill out a job application, write a resume, read a child's report card, or a note from the teacher — that effects about 20 percent of the adult population.

When we layer on top of that the technological illteracy rate in the state, the technology may be significantly outdistancing the library's conserver role of bridging the gap between those that have the literacy skills *and* the economic capability to acquire and use the new technologies with those who not only do not have the literacy skills but do not have the economic impowerment to acquire and use the technologies as individuals.

CCN: What recommendations would you make about how the state library system might assist in remediating this potentially devastating societal weakness.

STRONG: In my testimony, I particularly addressed public policy concerns that I felt might not be addressed by others that were testifying. So while I have other issues that I am concerned about, the commercial sector tends to support and deal with those and so I did not. I wanted to preface my comment here in that way. These are not the only concerns I have, but they are ones that typically do not get addressed by the commercial sectors.

First and foremost is protecting individual and institutional privacy.

In an electronic environment we have protections for freedom of speech, freedom

of expression in traditional public gathering, in print content and within the broadcast media.

We do not have similar protections, many of us feel at least, in the electronic environment — informational messaging that is transfered back and forth across data lines in digital form. Bank accounts, personal records, message systems, bulletin boards — all of these emmerging uses of technology, I don't believe, are adequately protected. The privacy of the individual in the institution is not adequately protected. A second area of significant concern I addressed from the library's perspective, and from the creative context, is the protection of intellectual property rights.

This concern is not only for the the software that is developed, and the licensing agreements and the kinds of other agreements that are necessary to protect the ownership of that code, but also the intellectual property rights of information that reside primarily in electronic form and are produced on demand, printed on demand.

Traditionally, we have produced and disseminated information. We've created it in printed form, printed many copies of it like in a book or a newspaper or a magazine and then it is protected by a copyright law and the intellectual property rights of the individual are pretty well covered and there are avenues of legal recourse.

Not so particularly with software or with information that resides only in an electronic form and is retrieved either on-line across telecommunications lines and then generated on cathode gray tube screens, monitors in someones home. They actually don't buy a printed book but merely use information that is in electronic form. This is true also where a publication would reside in an electronic format and is printed out on demand.

The mechanisms of getting at that and protecting the intellectual property are as complicated as those protecting the rating of someones bank account or adjusting your credit rating. Those are areas that have not been addressed I think adequately.

The third area that I addressed was the provision as public policy that the public library be the base of access to data bases and to at least a core of public use of microcomputers with telecommunications capabilities. This is particularly true for the data bases that are created with public funds.

There are many, many government-produced publications data bases that with the current move toward privatization, particularly at the federal level, are put in control of commercial entities and, while they may or may not add value to the information, they then sell it back.

I personnally believe, though there is not universal agreement to it, that this is a double taxation policy — one by the government, second by the pricing in the commercial sector. I think there are definitely things that the commercial sector ought to be responsible for making available and add value to them and charge for that value added.

I think there are other things, like public domain information, and data base information particularly, that the taxpayer has already paid for and should not have to expect the added cost of retrieving.

To that end, for example, the state library serves as a federal regional depository for federal information in print form. We are looking at how do we translate that into electronic form so that the average citizen, the government decision-maker and the small businessman alike can get at that information without a high cost to conduct their day to day business or to enhance the quality of their life.

CCN: If you were to summarize your major concerns for people in California as the society faces this information transition to a new base for business, a new base for the way we live and communicate, what would they be?

STRONG: I think it is really one major concern. We must define the roles within the public and private sector with respect to technology transfer, information transfer, electronic commerce, whatever you want to call it, that protect the citizens as an individual right of access to information — information that they need to conduct their daily personal lives and business lives.

That the structures govenment and the business sectors put together ensure this right of access.

And that economic censorship, as I've come to call it, does not prevade the society so we have a larger and larger growing welfare class with overtones of economic information deprivation — as well as hunger, housing, transportation, the other kinds of needs.

I think we've got the opportunity to learn from the societal impacts of the past and not create the same set of societal deprivations in an information age.

I think we've got the opportunity to learn from the societal impacts of the past and not create the same set of societal deprivations in an information age.

VIDEOTEX INDUSTRY ASSOCIATION

TESTIMONY
ON
THE FUTURE OF ELECTRONIC COMMERCE IN CALIFORNIA

BY

MIKE RIDENHOUR
DIRECTOR OF MARKETING
E/SOFT, INCORPORATED

ON BEHALF OF
THE VIDEOTEX INDUSTRY ASSOCIATION

CALIFORNIA LEGISLATURE
ASSEMBLY COMMITTEE
ON
UTILITIES AND COMMERCE

JUNE 25, 1986

Summary Statement of Mike Ridenhour

Marketing Director, E/SOFT, Incorporated

June 25, 1986

Within the realm of all data communications systems and services, videotex refers to those that are easy-to-use and interactive. Videotex requires little or no training and can be used in the home, in the office, and even in public places.

The videotex industry is quite diverse. This is due to the fact that there is a broad range of videotex applications. This is also the result of the fact that videotex is not a discrete, new technology, but rather a manner of applying computer and telecommunications technologies which already existed.

There are distinct market segments in the videotex industry which must be recognized in any discussion of public policy issues. The market is segmented by application area into four pieces: public access, residential, corporate, and business-to-business.

It is an industry in which the entrepreneur is very active. Small business plays a large role in today's industry and will become even more important in the coming years.

Regarding access issues, the fundamental purpose of videotex is to increase the audience that can make use of electronic information and transaction systems. In several segments of the industry, there are not any barriers which individuals must

overcome to use videotex. In these cases, access is free (or paid for by an employer) and an access device is provided.

Regarding consumer privacy and protection, the VIA, through its Industry Practices and External Affairs Councils, has worked to establish fair and uniform consumer privacy practices within the industry, as well as computer crime legislation at both the State and Federal levels.

Videotex is now in its early stages of growth. The videotex market is exhibiting many of the characteristics that were evident during the early years of innovations such as the telephone, radio, television and computer.

The Videotex Industry Association was formed to promote the healthy and orderly growth of the industry. The VIA brings together the leading companies in the industry to develop and refine solutions to the business and technical issues that require cooperative effort to be resolved successfully.

I am Mike Ridenhour, Director of Marketing at E/SOFT, Incorporated. I have been involved in the videotex industry since 1982, providing software development services to vendors and users of videotex systems. For the past year, I have served as Chairman of the Northern California Chapter of the Videotex Industry Association (VIA). I am testifying today on behalf of the VIA.

The paper written by Robert Jacobson and Melinda Yee presented a brief overview of electronic commerce and raised several public policy issues. My comments today will address three of these issues: industry structure and competition, equity of access, and consumer privacy and protection.

My testimony focuses on the portion of electronic commerce known as videotex. Videotex refers to easy to use, interactive electronic services.

Videotex is not a new technology, but rather a new way of using existing computer and telecommunications technologies. At its root, videotex is simply a way of packaging access to electronic information and transaction systems in order to expand the audience capable of using these systems.

Industry Structure:

The breadth of videotex applications has created a diverse industry. Industry participants come from the computer and telecommunications fields, from publishing, banking and retailing, and from government, education, and entertainment.

Many of our nation's largest corporations have entered the videotex industry. Yet, it is an industry in which the entreprenuer is very active. The membership of the VIA reflects this fact. Forty per cent of VIA members have annual revenues of under one million dollars.

The industry is still in its infant stages. As with many innovations, it is taking time to discover the best uses for videotex. It was "invented" by the British in the early 1970's to provide information electronically to mass residential audience. In the past 15 years, videotex has spread from the home, to the office, and into public places.

The videotex market is generally segmented along the lines of these application areas. There are four segments: public access videotex, residential videotex, corporate videotex, and business-to-business videotex. It is critical that any discussion of public policy issues recognize and understand these market segments.

Public access videotex systems are made up of information terminals situated in airports, shopping centers, hotel lobbies, and a variety of other public places. The terminals cost nothing for a person to use and they provide information on a variety of topics, such as: restaurants, shopping, business news, weather, transportation and local points of interest.

The nation's largest public access system is Teleguide. Teleguide has installed over 800 terminals in the San Francisco

Bay Area, San Diego, Sacramento, Lake Tahoe, Pheonix, Reno and Las Vegas. Other public access systems are operating in Chicago, Boston, Atlanta, Minneapolis, Lousiville, Columbus and Orlando.

In addition to city wide systems like Teleguide, many banks and retailers employ public access videotex in their stores to provide information to customers.

In the home, consumers may use either personal computers or inexpensive specialty devices attached to television sets to connect to videotex services. Home services range from news, banking and shopping, to special interest bulletin boards and databases. The three largest systems -- CompuServe, the Source, and Dow Jones -- now serve over 600,000 subscribers.

In the office, more than 100 companies are now using videotex to improve the distribution of corporate information to both employees and customers. Link Resources, an industry consulting firm, expects that number to rise to over 3,100 by 1990.

Companies install corporate videotex systems primarily to reduce the costs associated with internal communication. Videotex helps reduce a company's dependence on expensive hard copy documents and also facilitates the distribution of information which is time sensitive.

Business-to-Business videotex systems generally serve as a marketing tool. These services deliver detailed, up-to-date product information directly to customers. In some instances, a

business-to-business videotex service bundles the information of a number of related companies into a single service for a targeted market. In other cases, individual companies develop systems that deliver only their own product information to specific customers.

Competition:

There is a healthy level of competition across all segments of the videotex industry. The attention focused on the joint ventures formed by Sears-IBM-CBS, RCA-Nynex-Citibank, and Chemical Bank-AT&T-Time Inc. is misleading.

Every indication given to date suggests that these ventures will be active only in the market for residential videotex and that they will deliver narrow services to targeted consumer groups.

In the residential segment today, services are directed at the 3.6 million homes with personal computers and modems. Subscribers to the three largest services represent just 20% of the market -- and the growth of these three has come largely from a decison to serve as service bureaus for bulletin board and niche services.

I expect the market for videotex to resemble the market for personal computer software. I have no doubt that several large players will emerge within the industry. But as in software, the fragmented nature of demand ensures a future for small bsuinesses willing to target specific applications and markets.

Equity of Access

The fundamental purpose of videotex is to increase the access to electronic services. In the residential segment, access has been constrained by the cost of the equipment needed to access videotex services -- but this is rapidly changing.

The equipment a consumer would need to buy to access Bank of America's HomeBanking service, for example, cost almost $1,300 in 1981. Today, the necessary equipment is just $79.95.

In the public access segment, in corporate videotex and in many instances within the business-to-business market, access is unrestricted. The videotex services are free, or paid for by the user's employer, and the equipment required to access the service is provided.

Consumer Privacy and Protection:

Since its founding in 1981, the VIA has pushed to establish industry practices and state and federal legislation which ensure consumer privacy and protection.

This effort has been directed by the VIA staff in Rosslyn, Virginia in conjunction with member companies active in the VIA's Industry Practices and External Affairs Councils.

As appendices to this testimony, I have included two pieces of legislation drafted by the VIA on the subject of computer crime. These are appendices A and C.

Appendices D and E focus on the issue of privacy. These materials include the "Model Privacy Guidelines For Videotex Systems" prepared in 1983 and an article written earlier this year by Robert Smith, Executive Director of the VIA.

In Closing:

On behalf of the VIA, I thank you for the opportunity to participate in today's hearing. The VIA exists to promote the healthy and orderly growth of the industry and we look forward to working with you as part of this effort.

It is an extremely young industry which is still experiencing the difficulties inherent in the process of introducing society to innovations: the best uses for videotex are still being discovered; standards issues are hindering growth; base technologies are changing too rapidly in some instances and too slowly in others; and economics are limiting widespread distribution.

All of these problems were encountered by the telephone, radio, television, and computer in the early stages of their introduction. Within the VIA we are encouraged by the quickening pace in which these previous innovations were adopted by society. In twenty years, we fully expect videotex to be as commonly used as any of these inventions.

INSTITUTE FOR THE FUTURE

Electronic Information Services

A Report Prepared By
Institute For The Future
Menlo Park, California
For The
California Department of Commerce
Office of Economic Research
May 1986

George Deukmejian, Governor

ELECTRONIC INFORMATION SERVICES

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ELECTRONIC INFORMATION SERVICES

OVERVIEW

The electronic information publishing industry has shown tremendous growth since the first services began in the late 1960s and has the potential for continued growth in the next ten years.

The locations of the electronic information industry generally are divided among the East Coast (particularly New York, Pennsylvania, and the Washington, D.C., metropolitan area) and Ohio, where major markets and suppliers are located, and California, which is perceived as the focus for technology development in the industry.

Many of the companies that make up this industry have their roots in two related businesses--computer services, which spawned CompuServe and GEISCO, among others, and print publishing, parent of such companies as McGraw Hill's Financial and Economic Information Company, Mead Data Central, Reuter's Ltd., and Dow Jones News/Retrieval. As spin-offs or divisions of these companies, electronic information services tend to be located in close proximity to their parent organizations and, in the case of print publishers, their information suppliers.

It is unlikely that established companies in this industry will relocate major facilities to California. What is possible is that these companies, in search of particular talent in software engineering for personal computers, for example, will locate research facilities in this state.

INDUSTRY HISTORY AND PROFILE

Introduction

The rapidly evolving electronic information services industry generated revenues estimated at over $2 billion in 1984. Information services discussed in this report include three segments: the production and on-line provision of electronic databases (electronic publishing), fee-based search and abstracting services, and the storage and retrieval of information by document supply firms. Electronic publishing is covered in the first

section of this report. Fee-based services and document retrieval, which are generally performed by the same firms, are discussed in the second section.

Electronic publishing is the dissemination of information by electronic rather than print media. Traditionally, electronic publishing also has meant a concentration on textual rather than audiovisual media, although this distinction is blurring somewhat as services including pictures or other graphics come into greater use. Electronic publishing represents about 80% of the total electronic information service industry revenues.

Information brokers are firms that as a primary part of their business search for and retrieve information for third parties. These firms frequently use electronically published information as a reference base.

Document retrieval businesses locate and provide information on request in a hard copy format (print, microform, and so on). This service frequently is performed by information brokers or electronic information providers.

Business and professional users account for nearly all revenues of these information services firms, while private consumers contribute barely 1%. Although little historical data exist for the industry before 1981, our estimates indicate that revenues have been growing between 25% and 30% annually in the past decade.

History

The earliest computerized information retrieval systems became available in the 1960s when time-sharing and large capacity computer memories made their way into research institutions and large businesses.

The federal government was among the earliest supporters of electronic databases. In 1966, the National Aeronautics and Space Administration (NASA) awarded Lockheed Missiles and Space Company a $20,000 contract to develop a prototype aerospace database using recently introduced "third generation" computers. The system was installed at the Ames Research Center in California in 1967 and called NASA/RECON, for Remote Console Information Retrieval System. The software to run the system was called DIALOG, suggesting the novelty of being able to interact with a computer rather than having to wait several hours for its output. At about the same time Lockheed was installing its database, the National Library of Medicine was developing its Medical Literature Analysis and Retrieval System (MEDLARS). In 1969, the National Library

of Medicine hired a computer software designer--System Development Corporation (SDC)--to put that database on-line. MEDLARS on-line became MEDLINE. The federal government developed many of the early on-line databases, including the Educational Resources Information Center (ERIC) and the National Technical Information Service (NTIS). Private companies and nonprofit organizations soon followed in launching commercial database services. Most databases did not begin to experience widespread use until the 1970s when data communications networks such as Tymnet and Telenet emerged and drove down the costs of communications. In 1977, approximately 362 databases served 17,000 customers. By 1985, over 2,000 databases served 977,000 customers.

Six main factors have contributed to the viability and growth of commercial on-line database systems and services:

-- The development of time-sharing--the simultaneous use of computers by multiple users, whether on site or in remote locations

-- The emergence of data communications networks such as Tymnet and Telenet that drove down the cost of communications

-- The rapidly decreasing costs of random access storage media

-- The availability of terminals and personal computers (PCs) at affordable prices for businesses and many individuals

-- The growing availability of information in machine-readable form

-- The software developments that allow many users to create, update, and search databases.

Industry Revenues and Employment

Total U.S. revenues for electronic database production and delivery via on-line vendors are expected to exceed $1.9 billion in 1985. These revenues are growing rapidly. Between 1981 and 1984, U.S. revenues grew at an average annual rate of 30%--from $683 million to over $1.5 billion. U.S. revenues are expected to exceed $12.8 billion in 1995 (see Table 1).

Table 1

Growth in U.S. Revenue for Electronic Publishing, 1981-95

(Millions of Dollars)

User Groups	1981	1982	1983	1984	1985	1990	1995
Business	645	830	1,120	1,415	1,775	4,797	11,500
Academic	35	40	50	60	70	129	385
Consumer	3	8	18	35	60	223	928
Total	683	878	1,188	1,510	1,905	5,149	12,813

Sales growth is matched by growth in the number of products and services offered. The number of on-line databases has more than tripled since 1980. By 1984, over 300 organizations were providing access to approximately 2,000 databases (see Table 2).

Sources: Knowledge Industry Publications; IFTF projections

The availability of low-priced computer terminals, the declining costs of information processing, and the constant addition of new databases and on-line services will continue to encourage the growth of this industry segment into the 1990s. Although we expect the market for domestic on-line business information to approach maturity in the early 1990s, transactional services for household markets such as electronic banking and on-line shopping will help expand the consumer market, and the international market should continue to be a large source of revenue for the industry. The U.S. Department of Commerce estimates that over 50% of electronic information services purchased in Western Europe, for instance, are from U.S. sources.

Although actual revenue and employment statistics associated with the electronic publishing industry are not collected in any systematic fashion in the United States, estimates of the geographic distribution of revenue and employment in some of the leading states are indicated in Table 2.

Table 2

Leading States: Revenue and
Employment Distribution of 20 Leading Companies

Revenues Location	Employees (Millions of Dollars	(Thousands)
United States (total)	1,510.0	24.0
California	350.0	5.6
New York	315.9	5.0
Ohio	182.5	2.9
Michigan	97.0	1.5
Florida	67.0	1.1
Connecticut	62.1	1.0
Georgia	60.0	0.9
Massachusetts	52.0	0.8
New Jersey	39.0	0.6
Minnesota	25.0	0.4
Virginia	11.7	0.2
All other	247.8	4.0

The data contained in this table are based on revenues and employment of the 20 largest electronic information vendors in the United States. (See Table 10 for a list of these companies.) These firms produce 80% of the industry's revenues.

The figures in this table have two sources of bias. First, they attribute all revenues of a company to the state in which the company is headquartered. Thus, for example, although Quotron has significant operations in New York and Chicago, all revenues and employment of that company are attributed to California. Second, they do not account for companies outside the very largest in the industry.

Foreign Competition

On-line databases are used most heavily in the United States and Canada, which together account for between 60% and 75% of total use. The United States is the world's dominant producer of information services. U.S. firms obtain significant revenues from foreign sources seeking information on U.S. markets and technology. Revenues from foreign sources should increase rapidly in the years ahead. In the international market, however, some governments are considering limiting the access of foreign firms to domestic information. The French, in particular, are considering levying value-added customs duties on data tapes and on-line data transmission across French borders. Some analysts believe these restrictions could slow the growth of information services in the 1990s.

Domestic Markets

Business customers are the largest users of on-line information services. They account for nearly 94% of all on-line information revenues. Academic and education customers account for just under 4% of on-line revenues, and the remaining 2% is contributed by individual consumers. The user profile of database services is gradually shifting. Although consumer services currently make up only a small percentage of the market, they are growing at a rapid rate. Their contribution to on-line revenues grew at an average annual rate of almost 126% between 1981 and 1984. The consumer and professional markets are generally thought to be the most dependent on sales of personal computers.

The bulk of electronic database revenues will continue to come from business and industry into the 1990s. Although the consumer market has realized dramatic annual growth rates in the past three years, it started from a very small base and has been restricted by the availability of appropriate databases and services. The growth of services such as electronic banking, stock trading, and electronic shopping, however, should expand the home market to account for at least 7% of the total revenues by 1995. Academic markets' share of revenues have declined since 1981. This decline has been attributed to shrinking funding in the schools and the expense of using on-line databases. Revenues from this market are unlikely to account for more than 3% of the total in 1995 although there is some evidence that those consumers who are interested in home services see education services as having potential value (see Table 3).

Table 3

Revenue Accounted for by User Groups

User Groups	1984 Revenue (Millions of Dollars)	Percent	1994 Revenue (Millions of Dollars)	Percent
Business*	1,415	94	11,500	90
Academic	60	4	385	3
Consumer	35	2	928	7
Total	1,510	100	12,813	100

*Includes government

Source: IFTF

Types of Databases

Before discussing the actors involved in producing and distributing on-line information, it may be useful to describe the major categories of databases. When classifying databases by presentation of content, at least four kinds emerge: reference databases, full-text databases, fact databases, and transactional databases.

-- Reference databases. Sometimes called bibliographic databases, reference databases contain abstracts of documents. These databases started because computer storage of entire documents was expensive, and they are the most common category. Some of the databases cover hundreds or even thousands of source publications. ABI/Inform, for example, provides abstracts of more than 300 business publications.

-- Full text databases. As technical advances in computer memory continue, we are likely to see this second category of databases expand. In a full text database, every word of the original document is included. Mead Data Central's LEXIS and NEXIS are full-text databases. NEXIS has magazine, newspapers, newsletters, and news wire services on-line, word-for-word. LEXIS, a database directed at the legal profession, contains the full text of every decision by the federal courts and state supreme courts as well as many

other documents in full text. Newsnet is another full-text database that includes hundreds of daily and weekly newsletters on-line. The U.S. Government's Commerce Business Daily is available on-line through another vendor--Dialog.

Another difference between reference and full-text databases is the method in which they are searched. Full-text databases generally are searched by a method called free text. In simplistic terms, free text searching allows the user to search articles or other text-based information for any mention of a word, phrase, or words in combination. In reference databases, however, an indexer or abstractor reads each item before it is entered into the computer; the indexer writes a summary that includes indexing terms. There are many kinds of indexing terms, but the common denominator among them is that index words are added by the abstractor and can be searched independently. This use of different indexes and search strategies among databases can make it difficult for the novice or nonspecialist to obtain information.

-- Fact databases. This category is sometimes referred to as source or nonbibliographic database and represents a third kind of on-line information. Fact databases can contain anything you might find in a directory, handbook, reference guide, schedule, statistical report, stock market table, or even information that never appears in print. The electronic yellow pages, various government databases on, for example, exports/imports, employment, Books in Print, and so on, are all fact databases. Database vendors such as Data Resources, Inc. and Chase Electronics/Interactive Data, specialize in fact databases. Fact databases of real-time information on market prices for stocks, bonds, government securities, overseas markets, and credit information currently represent the most lucrative part of electronic information services. Vendors of these databases are responding to their clients' growing use of personal computers by providing software for analyzing this information. Others are attempting to add value by coupling such factual information with transactional services.

-- Transactional databases. This fourth type of database has been developed only recently. According to the trade magazine, Data Communications, at least 54 of these databases currently list or display, products and their prices, for example, and allow users to buy and sometimes to sell items. Included in this category are tracking venues for chemicals, over-the-counter

stocks, used car parts, and stock photo distributors, to name a few. Electronic banking also falls within this classification.

Types of Companies

The dominant characteristic of the electronic publishing industry is fragmentation. Many companies dominate small segments of the on-line industry, but no company dominates overall. Dozens of major, financially healthy publishing companies currently are competing within the industry for larger market shares.

The electronic database publishing industry can be divided into two sets of actors:

-- Information providers (IPs)--the organizations that produce databases

-- Systems operators (SOs)--the organizations that sell them.

Each type of company is described below. These actors are not necessarily mutually exclusive, however. Many information providers also provide on-line access to their own databases, and systems operators frequently act as information providers for one or more databases on their retrieval system. In addition, both of these types of companies may provide information broker services or document retrieval services as part of their businesses.

Information providers

Information providers (IPs) are the manufacturers of electronic publishing and account for about a third of electronic publishing revenues. U.S. information providers currently number over 900 organizations. As indicated in Table 4, the number of IPs in this country grew by approximately 165% between 1980 and 1984. This growth was matched by a dramatic increase (233%) in the number of databases produced. (One industry analyst has suggested that databases may be growing by three each day.) These figures suggest a growing tendency for IPs to produce more than one database. Nevertheless, our research suggests that about 67% of IPs existing in 1984 produced only a single database.

An information provider may be a commercial publisher, a government publisher, a professional association, or other type of organization such as a nonprofit or academic organization. Table 5 presents a breakdown of information providers by sector.

Table 4

Growth in the Number of U.S. On-Line Databases, 1980-84

Year	Databases	Customers	Producers	Retrieval Systems
1980	600	130,000	340	93
1981	965	199,000	512	170
1982	1350	324,000	718	213
1983	1,750	673,000	850	255
1984	2,000	977,000	900	300
AAGR*	35.1%	65.5%	27.5%	34.0%
1990	4626	3,726,960	1280	530
1995	5680	13,837,940	1630	780

*AAGR = Average Annual Growth Rate

Note: Customers include terminal, password, and customer counts and should not be taken necessarily as indicating the level of use. Many passwords probably represent inactive users.

Sources: IFTF (historical data from Knowledge Industry Publications)

Table 5

Distribution of Information Providers by Sector

Sector	Percent of Databases Provided
Commercial	43
Government (international, national, state, local)	33
Professional associations	12
Not for profit	6
Academic	6

Source: U.S. Industrial Outlook, 1985

Commercial information providers generally are small companies or small units of larger companies. Traditionally, they have been units of print publishers.

Aside from playing a role in supporting the development of early databases that later went commercial, the federal government continues to play a large role in supplying the information carried on many commercial services. A 1985 directory of government databases listed 279 government databases that are available through commercial services. In general, government-collected data is not copyrighted or proprietary, although the government may exact some price for using its databases or may contract with a vendor or vendors to distribute its data to the public or other interested groups. In recent years, commercial organizations--for example, the Information Industry Association--have expressed concern that the government not compete with private vendors nor exact too high a price for distribution rights.

Revenues. Since information providers frequently are part of larger firms or privately held companies, revenue figures are difficult to estimate. The U.S. Department of Commerce estimates that information providers contribute approximately a third of total revenues in electronic publishing. This proportion would place estimated 1985 revenues at about $629 million for all on-line information.

On-line database providers receive their largest revenues by providing credit information; that service accounts for approximately 40% of revenues. Other data directed at businesses--financial, economic, and marketing data--make up about another 40% of revenues. The remaining 20% is made up of legal, scholarly information, news, government affairs, transactions (other than those included in the first two categories), patents, and lists, in that order of size (source: U.S. DOC, Business America 6/10/85).

The revenues for publicly available information that are not part of specialized services such as credit reporting, may be somewhat smaller. Only 21 of 285 databases surveyed in 1983 had revenues above $4 million per year according to Information Market Indicators, a firm that analyzes billing data from companies involved in database production. Thirty-five had revenues above $400,000 per year, and the rest "were far below that market." LEXIS, a database for the legal profession published by Mead Data Central, heads the list for generating the most database revenue, followed by CA Search, MEDLARS, NEXIS, Predicasts, BIOSIS, and Engineering Index.

When ranked by use, the top textual databases include LEXIS, MEDLARS, CA Search, ERIC, BIOSIS, NYTIS and AutoCite. According to IMI, however, a tremendous gap in use exists between these databases, and LEXIS leads the others by a wide margin.

Geographical Distribution of Information Providers. The majority of information providers in the world are located in the United States, Canada, and Western Europe, as indicated in Table 6. The U.S. share of world information providers dropped between 1980 and 1983. The decline was due primarily to increases in Western Europe, Japan, and Australia. Countries in Western Europe have benefited from concerted government efforts to encourage the growth and use of information services--particularly in England, France, and West Germany.

Table 6
World Distribution of Information Providers

Geographic Region	Percent of Total Database Suppliers 1980	1983
United States	66.0	59.3
Canada	12.0	7.2
England	8.0	8.6
France	8.0	7.1
West Germany	NA	3.7
Other	5.0	9.0
Europe (total)	21.0	28.4
Other	1.0	5.1

NA = Not available

Note: The information provided in Table 6 is based on location rather ownership data. In other words, where branches or subsidiaries of U.S. companies are located in Europe, they were counted as information providers in Europe rather than in the United States.

Sources: (Spigai, 1982), IFTF

Table 7

U.S. Distribution of Database Information Providers, 1983

(Percent of Total)

Geographic Region	Information Providers
East	61
Midwest	24
Mountain and Pacific	15

Source: IFTF

The majority of U.S. information providers are located in the East. This fact is not surprising, given the preponderance of print publishers located in that region. In the Mountain and Pacific States, California--by a wide margin--is the dominant location for information providers.

Sixteen states account for 84% of all information providers in the United States. The number of information providers in New York is about the same as the combined number for the District of Columbia and California, the second and third ranked states. However, if the metropolitan Washington, D.C., area is considered as a whole, the proportion of database providers in that area rises to approximately 20.3% because the vast majority of database providers in Maryland and Virginia are in that metropolitan area. As might be expected, the majority of databases in the D.C. metropolitan area are produced by or about the federal government.

Table 8

Top 16 States in Number of Information Providers

Rank	State	Percent of U.S. Information Providers
1	New York	20.3
2	District of Columbia	11.3
3	California	9.0
4	Virginia	5.3
5	Illinois	5.2
6	Massachusetts	4.9
7	Pennsylvania	4.4
8	Ohio	3.9
9	New Jersey	3.9
10	Maryland	3.7
11	Connecticut	3.0
12	Colorado	2.5
13	Minnesota	2.5
14	Texas	2.4
15	Michigan	2.2
16	Florida	1.8
	Others	13.7
	TOTAL	100.0

Source: IFTF

Costs of Production. Costs to information providers vary by the type and source of the database. Some databases are merely on-line versions of a print product; others are enhanced versions of print; and still others are produced explicitly for on-line use. When on-line information is an electronic version of already existing print material, the costs incurred by IPs tend to be marginal to those normally incurred in producing the print product. When the product is produced explicitly for electronic publishing, information providers often face significant labor costs associated with collecting

and reporting information. Once this is accomplished, electronic publishers are faced with four kinds of additional costs: editorial, production, marketing, and a series of miscellaneous costs.

Editorial costs. The largest single cost in producing electronic databases is the editorial staff, including editors, writers, and abstractors. For print publishers, these staffs typically are associated with the print component of the parent company's business.

Production costs. Production costs are minimal if the information is already in machine-readable form and will be distributed on-line in the same or similar format to the print version. In that case, production costs will consist primarily of indexing the information for electronic searching, computer processing costs associated with defining format and checking errors, format processing for the on-line host system, and tape production.

For those databases that currently are not in machine readable form or that vary from their print counterpart, however, IPs can incur significant additional editorial costs as well as substantial costs for data entry. For example, about 90% of LEXIS, Mead Data Central's on-line database for the legal profession, has to be keyed in by hand, one character at a time. Most keyboarding for LEXIS and other databases provided by Mead Data Central is done offshore, typically in Taiwan or the Philippines, often by non-English speaking employees. But it is still relatively expensive: it costs the company around 70¢ per 1,000 characters. At this rate, keying information costs the equivalent of about $3.50 per typewritten page. Since LEXIS includes full-text coverage of federal cases and case law in the United States, the United Kingdom, and France--keying charges are a significant cost in producing the database.

Even when publications currently are in machine readable form, back issues may not be, so getting this information into a database also can represent significant costs.

Costs of keyboarding might become cheaper and easier with improvements in scanning technology. For many publications, the database operators already have a choice between keyboarding and electronic scanning. The two have been roughly competitive in price and accuracy, but new scanning products may eliminate a lot of offshore keyboarding.

Marketing costs. These costs are associated with selling rather than producing the product. They may include designing and providing training sessions for on-line users, developing documentation on the database, publishing newsletters, and buying

print advertising. These costs are higher for those IPs that also act as the vendor for the database.

Miscellaneous costs. These include one-time optional charges by systems operators for consulting, file design, programming, and initial file loading. Transporting the on-line product and updates to the system operator(s) either by sending tapes or by communicating data over the phone lines also are costs to the IP.

Systems operators

These firms are the retailers of the electronic publishing industry and account for at least two-thirds of revenues. Approximately 300 of these services operate in the United States today.

The distribution of on-line services by sector is quite different than that for information providers, as indicated in Table 9. The bulk of all information retrieval services (82%) is provided by commercial establishments.

Table 9

Systems Operators by Sector

Sector	Percent Distribution
Commercial establishments	82
Academic and not for profit	9
Government agencies	8
Professional associations	1

Source: U.S. Department of Commerce, Industrial Outlook, 1985

Systems operators (SOs) tend to be larger than IPs, but are not large companies when measured against the Fortune 500, although some--including Dialog Information Services and Mead Data Central--are subsidiaries of Fortune 500 companies. According to recent reported revenues, only a handful of SOs had annual on-line sales exceeding $50 million. The 20 largest firms and their relevant revenue, service, and client information is included in Table 10. These firms account for over 80% of SO revenues and are dominated by firms offering quotation services and other economic and financial services for businesses. Except perhaps for the consumer-oriented services, CompuServe

and The Source, the companies listed in this table derive most of their revenues--in some cases all of it--from business users.

Table 10

Services and Revenues--Top 20 Electronic Information Vendors

Vendors (Parent Company)	Major Services	Description	Major Customers	Number of Customers (1/1/85)[1]	1984 Database Revenues (Millions of Dollars)	Database Revenues as a Percent of Total	Revenue Growth, 1983-84 (Percent)[1]
Quotron	Financial Information Service	Real time financial data, stock, bond options, mutual funds, and commodities quoted on major American, Canadian, European, and Far Eastern exchanges	Brokerage houses, banks, and insurance companies	72,151 terminals	154-175	100.0	24
Mead Data Central (Mead Corporation)	Lexis Nexis	Full text of legal decisions Full text of general news and business publications	Lawyers, business people, librarians	42,000	125-130	5.0	31
TRW Information Services Division (TRW Inc.)	TRW Credit Data TRW Business Credit Profile	Credit information on 120 million customers Business credit reports	Banks, retailers, finance companies	24,000	105[1]	1.8	25
ADP Network Services (Automated Data Processing)	FS One ADP Network ADP Comtrend	Economic, banking, corporate, financial, and investment data	Large corporations, banks, investment banking and brokerage firms, insurance companies, government agencies	N/A	97[1]	12.9	20
Telerate, Inc. (Exco, International)	Telerate Financial Information Network Telerate II	Foreign exchange and government securities prices; real-time transaction prices on markets without central exchanges	Banks, brokerage firms, other financial institutions	15,600	88-113	100.0	31
Financial and Economic Information Company (McGraw Hill, Inc.)	Data Resources, Inc.	Business, financial, and economic time series data	Large corporations	N/A	79.9[2]	6.2	20[3]
Dun and Bradstreet	Dunsprint Duns Quest Dun Serve II Official Airline Guide (OAG)	Business and financial data on U.S. and Canadian companies; OAG flight schedule and rate information on airline flights	Banks, retailers, finance companies, and business people	17,500 (Dunsprint) 20,000 (OAG direct access)	63	2.6	26
Bunker-Ramo Information Systems (Allied Corporation)	Market Decision System 7 Telequote III	Price and volume data on stocks, bonds, commodities, and currencies	Banks, brokerage firms	30,000	62.1[1]	N/A	15
Equifax, Inc.	Financial Control Service	Investigative credit reports, consumer credit reports	Life insurance companies, banks, retailers, and oil companies	35,000	60[1]	11.7	50

(Continued)

Table 10 (continued)

Services and Revenues--Top 20 Electronic Information Vendors

Vendors (Parent Company)	Major Services	Description	Major Customers	Number of Customers	Database Revenues (Millions of Dollars)	Database Revenues as a Percent of Total	Revenue Growth, 1981-83 (Percent)
Dialog Information Services (Lockheed)	Dialog Information Services	Current affairs, science, technology, social sciences, humanities, business and economics (200 databases)	Corporate and academic libraries, business people, and consumers	57,500	50-59	9.6	31
Chase Econometrics/ Interactive Data (Chase Manhattan Bank)	CE/IDC	U.S. and foreign economic and financial databases	Fortune 500 companies, banks, brokerage firms	N/A	52	12.5	8
Reuters, Ltd.	Reuter's Monitor	Business news, stock and commodity prices, and shipping schedules	Brokerage firms, other financial services, shipping lines	19,447	59[4]	13.7	16
Knight Ridder Newspapers, Inc.	Commodity News Service Viewtron	Wire and quotation services, consumer videotex service	Commodity traders, consumers	9,500 (CNS) 3,100 (Viewdata)	40-67	4.0	14
Dow Jones Information Services (Dow Jones & Co., Inc.)	Dow Jones News Retrieval	Business and economic news, financial and investment services, quotations, and general news	Corporate executives, financial and investment analysts, information specialists, and students	220,000	39	4.0	19
Online Computer Library Centers, Inc.	Online Union Catalog	On-line cataloging and processing services	Libraries	6,207 terminals	37	N/A	19
Business Information Services (Control Data Corp.)	Business Information Services	Economics, financial, investment, and marketing data	N/A	N/A	25	0.4	35
SDC Information Services (Burroughs Corp.)	ORBIT	Patents, chemistry, energy, pharmaceuticals, government information, and engineering	Librarians or information specialists	8,000[2]	11.0[1]	N/A	10
Bibliographic Retrieval Services (Thyssen-Bornemisza)	BRS	Science, business reference, education, and social sciences	Academic and corporate libraries	12,000	10.0[1]	-	
Source Telecomputing Corporation (Reader's Digest)	The Source	General and business news, consumer and medical news, airline schedules, on-line stock services	Consumer and business users	60,000	11.7[1]	N/A	35
CompuServe, Inc. (H&R Block)	CompuServe Information Service	General and business news, stock quotations, home banking and shopping, airline reservations	Consumer and business users	250,000	9.5-15.5	2.3	64

N/A = Not available

[1] Estimated

[2] 1983

[3] 1982-83 growth

[4] North America only. Worldwide revenues for electronic publishing in 1984 constituted $303 million, or 85% of total company revenues.

Sources: Data Communications, September 1985; Knowledge Industry Publications, Databasics

*Bunker-Ramo was purchased late in 1985 by Automated Data Processing Inc.

In addition to the firms in this table, others plan to begin offering on-line services in the near future. Trintex--a joint venture of IBM, Sears, and CBS--is expected to offer consumer oriented services and to begin service offerings in late 1986 or 1987. Covidea--a joint venture of Chemical Bank (New York), AT&T, Time Inc., and Bank of America--was formed recently to expand current offerings of electronic banking and expects to offer additional financial and consumer services in the future. Another joint venture between IBM and Merrill Lynch and Company, called International Market-Net (IMNET), was formed this year in an effort to unseat Quotron as the number one provider of stock market data. These organizations may present prospects for location of branch or headquarters operations.

Geographic Distribution. An estimated 53% of all system operators in the world are located in the United States. Within the United States, more than one-third of all system operators are located in the greater New York area--where there is already a large concentration of financial and print publishers--and in Washington, D.C., home to government publishers.

Table 11

Geographic Distribution of Systems Providers

(Percent)

United States		53
Canada		6
Europe		32
England	7	
France	7	
West Germany	4	
Sweden	3	
Other	11	
Pacific Rim		5
Other		4

Pacific Rim = Japan, Singapore, Hong Kong, Korea, Taiwan

Note: The distribution in this table reflects location but not necessarily ownership.

Source: IFTF

Table 12

Regional Distribution of Systems Operators

Geographic Region	Systems Operators
East	60
Midwest	24
Mountain and Pacific	16

Source: IFTF

Table 13

Top 15 States--Distribution of Systems Operators

Rank	State	Percent of U.S. Systems Operators
1	New York	17.6
2	California	10.7
3	District of Columbia	8.2
4	Massachusetts	8.2
5	Illinois	5.6
6	Maryland	5.0
7	Virginia	4.4
8	Connecticut	3.7
9	New Jersey	3.5
10	Pennsylvania	3.5
11	Ohio	3.1
12	Tennessee	3.1
13	Michigan	2.5
14	Texas	2.2
15	Indiana	2.2
	Other	16.5
	TOTAL	100.0

Source: IFTF

Factors Affecting Demand. The demand for on-line databases will be determined by a number of factors, several of which already have been mentioned in the sections on foreign competition and domestic markets.

One important demand determinant is the customer's need for frequently updated information that is either unavailable or not available as quickly in printed form. Real-time stock quotations and credit information meet these criteria. Newsnet, a Pennsylvania-based company that offers on-line access to specialized and relatively high-cost industry newsletters, attributes its success in attracting customers to providing critical print information faster on-line than is available in hard copy and to providing some information that is available only on-line. Fifteen percent to 20% of the newsletters carried on Newsnet are on-line only.

Another important determinant is the availability of access devices. Traditionally, access devices for on-line information were dumb terminals--for example, Texas Instruments' Silent 700s or specialized (dedicated) terminals sold or leased by the information providers or system operators. Much of the credit information market, on-line stock information to brokers, real estate services, airlines reservations, and so on were developed initially using dedicated terminals as access devices. Sales of such terminals, as indicated in the report on computers and peripherals, have been rising. Nevertheless, we also expect the demand for information services to be influenced heavily by sales of personal (or micro) computers, particularly for newer on-line offerings. The movement of some database vendors such as Mead Data Central from access only through dedicated terminals to PC-based access tends to support this view.

Microcomputers also allow the use of search software such as In-Search, developed by Menlo Corporation of Santa Clara, California, for use with Dialog. Such software makes it easier for the on-line novice to develop searches off-line and pay only for the actual search and information retrieval costs.

Some analysts believe that the health of the U.S. economy is the most important determinant of information demand. Economic expansion increases the demand for information, particularly financial, marketing, and credit information. Economic expansion also increases the number of customers who can afford to pay for information.

A set of technologies that is likely to have a significant impact on the on-line industry in the next few years is read-only optical media. These technologies include the videodisc, CD-ROM (compact disc read-only memory), OROM (optical read-only

memory), and optical cards. These technologies are used with microcomputers, and their application is information delivery. Compared to print and microforms, read-only optical media offer dense, random access to machine readable data. More importantly for the electronic publishing industry, they allow publishers to deliver the stable portions of on-line databases direct to users who then have unlimited access for a fixed price. For high-volume markets, optical products are economically attractive to produce.

Commercial applications of these technologies are just beginning to emerge with OD-ROMs taking the lead. Library automation applications currently constitute about half of the total CD-ROM applications to date. Other on-line information suppliers such as Mead Data Central and BRS are also looking at CD-ROMs for their potential role in delivering nonvolatile data. The largest early markets for applications outside of library services are likely to be for internal corporate information. Possible applications include insurance records, banking information, and stock parts lists. Storage and retrieval of scientific and technical information are also likely applications. Three major database publishers--Chemical Abstracts Service, Engineering Information, and the National Technical Information Service (NTIS)--have recently begun distributing several of their chemical and engineering databases on CD-ROMs developed by Digital Equipment Corporation (DEC).

Costs of Production. Costs of production for systems operators fall into four categories:

-- Communications
-- Computing
-- Personnel
-- Royalty fees

Communications. For nationally available services, the lion's share of costs to systems operators goes for communications and computing. Communications represent an estimated 25% of total costs. Currently, systems operators communicate databases in two ways: through public-switched networks such as Telenet, Tymnet, and Uninet and by leasing dedicated lines to high-volume cities. Intrastate communications costs typically are more expensive than interstate costs because intrastate distance charges are higher in order to subsidize local telephone operation. Satellites are another potential communications technique. Satellites, however, tend to add an extra half-second delay time to an on-line transaction, and if three seconds is considered the accepted standard for transmission, a half-second can seem like a long time.

Computing. Costs for mainframes or connected minicomputers to host the information retrieval system represent the second largest cost component for systems operators. It accounts for approximately 10% to 20% of total operating costs.

Personnel. Personnel costs can be broken down into costs for customer support, applications, editing, and sales. These costs all tend to vary by type of system operator. They represent a higher proportion of operating expenses for consumer-oriented services like The Source and CompuServe because these SOs deal with individual consumers. Customer education, training, and support, on the other hand, are higher for companies like Dialog with complex databases that require more extensive training before they can be used.

Substantial costs can be incurred for applications programmers to put new databases on-line. These costs vary radically depending on the nature of the company and the databases involved. In general, the more emphasis placed on ease of use for databases, the greater the applications costs for system operators.

As indicated earlier, some SOs are also IPs. When this is the case, SOs face editorial and related costs for the databases they produce.

The size of sales or marketing costs for system operators depends somewhat on their client focus. Systems operators of consumer-oriented services marketing to individual users tend to make less on their sales than SOs selling to businesses. Consumer-oriented services have to expend more advertising money to create demand than, for example, a vertical market-oriented business service.

Royalty fees. The payments made to information providers for the right to put their databases on-line--vary considerably from database to database. The Source and Newsnet provide examples of the range. The typical royalty payment for The Source databases is around 10% of connect time charges for the database in question. For Newsnet, these payments range from 37% to 48% of connect time.

Information brokers and document retrieval firms

Companies. Firms offering either customized search and abstracting services or document supply services comprise the remainder of the electronic information services industry. Like electronic publishing, this sector is a new and quickly evolving industry.

Information brokers come in many varieties with as many names: information specialists, information consultants, free-lance librarians, information retailers, free-lance researchers, to name a few. No firm dominates the market. Rather, the information brokerage "industry" is composed of many small organizations, most of them with a particular specialty or strength that compete for corporate information business. (The term information broker also can encompass reference departments of public and research libraries. However, we are concerned with these groups only if they provide fee-based services.)

Document supply establishments serve business needs through the storage and retrieval of large quantities of information. Until the late 1970s, document supply firms tended to use microforms (that is, microfilm, aperture cards, microfiche) as the primary means of storing and retrieving information, but they have turned increasingly in recent years to computer-assisted methods.

Information brokers and document supply firms are overlapping industry segments. Many information brokers also serve as document suppliers, just as many database producers supply documents listed in their databases. Information brokers and document retrieval firms represent, for the most part, a cottage industry. The actors in the industry include a variety of "mom and pop" firms, public organizations, and not-for-profit establishments, as well as consulting firms and database producers that provide access to the documents listed in their databases and that will perform on-line and manual searches on a cost-plus or hourly charge basis. Turnover is considerable in the number of firms involved in this business. A directory of fee-based information retrieval services contains a list of 338 firms involved in this business. One growing group of actors in the information brokerage and retrieval business is university and corporate research libraries that are beginning to charge for retrieval services.

Revenues and Employment. Together, fee-based information brokers and document supply firms accounted for approximately 380 firms in 1983, with estimated revenues in the range of $50 million to $55 million. Total employment is estimated at approximately 900 full-time and at least 1,500 part-time employees.

Geographical Distribution. As is the case in electronic database publishing, most fee-based information brokerage firms are in the United States (see Table 14).

Table 14

World Distribution of Fee-Based
Information Brokers/Document Retrieval Firms

(Estimated Percent, 1983)

United States	77
Europe	9
Canada	4
Other	10

Source: IFTF

In the United States, 73% of information brokers and document retrieval firms are accounted for by ten states. California and New York are the leaders and together account for almost 25% of U.S. firms, followed by the District of Columbia, Illinois, and Maryland (see Table 15). Industry observers believe that concentration in California is due primarily to the existence of high-technology firms in the state. The concentration in New York is attributed to the existence of print and electronic database publishers in that state. Many firms maintain relationships outside their local base of operation, however, with "stringers" or "consultants" who have access to research and corporate libraries.

Table 15

Top Ten States--Ranked by Number of Information Brokerage Firms

Rank	State	Percent of U.S. Firms
1	California	12
2	New York	12
3	District of Columbia	9
5	Maryland	7
6	Texas	6
7	Pennsylvania	5
8	Massachusetts	5
9	Ohio	5
10	Virginia	4
	Other	35
	TOTAL	100

Source: IFTF (estimated from the 1984 Directory of Fee-Based Information)

Cost Components. Many of the costs associated with information broker services are for labor charges paid to librarians and information specialists. These firms generally have a parasitic relationship with large research libraries that they are located near and hire "stringers" at distant libraries to search for and retrieve documents unavailable elsewhere.

Some firms--for example Disclosure, which, until recently, specialized in obtaining filings at the Securities Exchange Commission--maintain their own files and pay the costs of microfiche and/or on-line storage of the information.

A third cost element borne by document suppliers, which is generally passed on to the customer, is copyright royalties. Depending on the published source, copyright royalty charges may account for 10% to 15% or more of the costs of supplying documents. Copyright royalties have become an issue in the past few years between large firms that do pay these royalties and smaller firms and libraries that frequently do not. Firms that pay these royalties must charge higher prices as a result of the additional costs and feel that firms that do not pay royalties have an unfair competitive advantage.

Factors Affecting Demand. One factor affecting demand is increased database awareness on the part of businesses and consumers. National advertising of large database producers and vendors has increased this awareness. Although much of this advertising has been directed at end-users, it is unlikely that it will affect the information brokerage and document retrieval service negatively in the next five years for a number of reasons:

-- The more databases that are on-line, the more complex comprehensive searches become, and the greater the need for information brokers.

-- Some databases require specialized knowledge of a field--for example, LEXIS legal databases--before they can be searched effectively.

-- Some databases have restricted access or high subscription fees--for example, while NASA's technology database NASA/RECON is directly available only to certified NASA subcontractors, a NASA-affiliated information broker can perform searches for third parties.

-- Perhaps most important for general clients, command languages vary from database to database, and it is difficult for nonspecialists to become proficient in all relevant languages.

-- Since the majority of databases on the market today are bibliographic, as opposed to full text, copies of relevant documents still have to be retrieved. Brokers, in their role as document suppliers, can find and photocopy almost any published item. Indeed, major database vendors--for example, SDC BRS, and Dialog--have established on-line links to numerous information brokers/document retrievers that will provide documents to users of databases included in these vendors offerings.

Driving Forces

-- Declining costs of long distance charges relative to fixed local charges and the emergence of local area networks (LANs) will increase the revenue potential of and the competition between national database providers.

-- Declining costs and increased computing power have combined with the growing use of business software to create corporate demand for personal computers. In 1984, approximately 4.6 million PCs were used in U.S. businesses. An estimated 25% of these units were equipped with modems. This percentage

is expected to exceed 50% by 1990 when over 22 million PCs will be installed in U.S. businesses. The U.S. Department of Commerce has estimated that from 60% to 90% of all new subscribers to on-line services use personal computers to access the system. And some industry analysts estimate that over 10% of all new PCs sold are used to access on-line databases and other information services. At least one industry observer attributes most of the 45% growth in customer, password, and terminal counts in 1984 to the increasing installed base of personal computers equipped with modems and communicating software. For the home market, access devices may become so inexpensive that vendors will offer them free with a subscription to the on-line service.

-- While industry analysts agree that the fast-paced growth of microcomputer sales in 1982 and 1983 had a very positive effect on the subscribers to on-line retrieval services, the increased use of PCs as on-line access devices represents mixed blessings to database producers and to retrieval systems. The use of PCs may increase the number of users while reducing revenue per customer. PCs allow users to preprogram a database search off-line and transmit it. This procedure allows database searches to be conducted much faster than the time an experienced user takes to key in the search instructions. As a result, information retrieval systems have begun to change their pricing policies away from charging for time on-line to charging for the number of searches or lines printed.

-- Increased use of PCs can lead to some loss of control by database producers and vendors because using PCs enables the users to access, download, and search databases with their own PCs. It is entirely possible for a user with a microcomputer to access and retrieve the information in a database at frequent enough intervals to maintain current files and use a PC to copy, search, reformat, and even resell the information included in the database.

-- Standardization, or the replacement of the current profusion of command protocols on different systems with one universally applicable search and retrieval language, will positively affect use, particularly in the consumer market.

-- One future alternative to on-line databases for data that is relatively time-insensitive is the laser scanned optical disc. The data storage capabilities

of these discs will continue to increase until enormous quantities of data can be stored on them. Time-insensitive data refer to any information that changes so infrequently that it is cost-effective to cut a master disc at the intervals required by the customer. Currently, cutting a master disc costs in the neighborhood of $25,000. Several database vendors, including Dialog and BRS, are already experimenting with placing portions of their service on these discs.

-- Reduced costs of computing, computer storage, and communications are the primary driving force on the supply side of the industry.

-- Improvements in and reduced costs of scanning technology will reduce the costs of placing nonmachine-readable information on-line.

-- Efforts by major database vendors to increase ease of use through developing search software and increasing the standardization of search strategies (described in the previous section) are likely to affect demand negatively for information broker services.

-- The increased entry of public and private libraries into fee-based information services will create competition with the services of current vendors.

-- The increased availability of full-text databases may affect document retrieval services negatively since documents may be printed directly from the database. Currently, there are at least three constraints on the availability of full-text databases: the costs of computer memory, the cost of computer muscle power to search more data faster, and the cost of converting existing printed text to electronic form. All these costs are declining steadily and eventually may remove the economic constraints from full-text databases.

The effect on information brokerage research services may be different. Some analysts argue that the increased availability of full-text databases will merely transfer the information explosion from print to computer and that sorting out the increased volume of on-line information will require more information brokerage services.

Key and Leading Firms

The major information broker/retrieval firms identified through a variety of sources include:

-- Find, SVP. Founded in 1970, Find, SVP is probably the largest firm in the information brokerage field. This firm has estimated annual revenues of $8 million and employs over 100 people.

-- Information on Demand. This firm was founded in 1978 following the breakup of Information Unlimited. It is considered one of the industry leaders, and although, founded by an individual entrepreneur, it now is owned by Pergamon International and Pergamon Press. Information on Demand receives revenues approaching $1.7 million each year and employs approximately 52 full-time employees. Currently, about 70% of the firm's business is document delivery, and the remaining 30% consists of information brokerage activities. However, the document supply portion is declining, and the information brokerage function is increasing.

-- Information Store, Inc. Like Information on Demand, Information Store was founded following the breakup of Information Unlimited. It currently provides research services to executives and document delivery to major corporations. In 1983, this firm employed approximately 35 people.

-- Dynamic Information Services. This firm employs 25 full-time people. It has concentrated on building a local base of business clientele for document delivery and database search services. Although the firm will search for most documents, its specialty is chemistry-related information.

-- University Microfilms International. This company, which is owned by Xerox, began by supplying microfiche and paper copies of dissertations. It now serves as an information clearinghouse and document order supply firm. Recently, UMI signed an agreement with the University of Michigan Library that will perform information brokerage functions for the company. Elsevier U.S. Holdings, a unit of the Dutch Publishing Company, recently signed a letter of intent to purchase UMI.

APPENDIX

TELETEXT AND VIDEOTEX

APPENDIX

TELETEXT AND VIDEOTEX

Teletext and videotex are among the techniques used to provide services that are sometimes referred to as "electronic commerce." What follows is a brief summary of the origins and development of teletext and videotex in the United States.

TELETEXT

Teletext uses one-way communication channels to deliver a variety of text and graphic information. This information may be transmitted by broadcast telvision or cable systems simultaneously with TV programs by using a small unused portion of a standard TV signal called the vertical blanking interval (VBI) or on a dedicated channel. The most common teletext use of the VBI in the United States is to provide captioning of television programs for the hearing impaired.

In teletext services, a teletext "editor" creates pages of information in a format suitable for display on a television screen, including text, graphics, and color. These pages are then stored in a computer and eventually transmitted as part of the TV signal to all receivers within range of the TV transmitter. A continuous stream of "pages" of information is sent in a continuous sequence. To receive information, the user needs only a display unit (usually a TV set) and a keypad decoder. The user keys his page selection into a keypad or keyboard attached to the TV set. The user's decoder waits until the page it has requested is transmitted, captures the page, and displays it on the TV screen until the system is turned off or another page is requested.

Teletext is one part of a larger array of data broadcasting which includes transmitting information using low-power television, multipoint distribution sysetms (MDS) that is, multidirectional microwave, FM radio, or direct satellite broadcast.

Teletext has been successful in Europe as a residential service where over five million homes are equipped with teletext decoders, primarily in Britain and West Germany. Teletext services are also used in France, the Netherlands, Switzerland, Austria, and Finland. The most recent introdution of a national teletext service is in Japan.

Goverment supported services in these countries use the World Teletext Standard which incorporates a relatively primitive graphics capability called alphamosaic. This standard has been promoted in the United States by Zenith Corporation and is currently used by Taft Broadcasting's "Electra" service. The bulk of the U.S. broadcasting industry, anticipating a need for superior graphics, has adopted instead the North American Broadcast Teletext Standard (NABTS). This standard requires a more expensive decoder which has, to date, been too expensive for residential use. Adoption of a common U.S. teletext standard would probably help reduce the cost of decoders by fostering volume production, and would expand the amount of information available to each user.

Although it cannot currently be considered a commercial success in the United States, teletext is seen potentially as attractive to the residential market because it costs less to deliver than two-way information. For television owners, the only equipment cost for accessing teletext information is the price of a decoder. Decoders cost anywhere from $300 to $1,000, however, and this price is too high to sell to a mass consumer market.

While waiting for decoder costs to decline as part of the broader reduction in memory and microprocessor costs, NBC and CBS and other broadcasters have operated national teletext services on an experimental basis to deliver news, weather, and sports information, for example. While NBC has discontinued its service, CBS has made extensive use of teletext in the Los Angeles area, and continues to offer its teletext service--"ExtraVision"--as part of its national network feed. A great deal of attention has been given to ExtraVision because it placed teletext decoders in a substantial number of public access locations during the 1984 Olympics and gave extensive coverage to the Olympics through its service.

The current trend has been for broadcasters to look at broadcast data applications for the VBI instead of teletext. Public Broadcasting Service (PBS) has entered into an agreement with IBM and Merrill Lynch to carry IMNET, a financial information service for reception by personal computers.

In 1985, industry observers felt that a resurgence of residential market applications would begin this year. Their opinions were based on the expectation that Samsung, a Korean manufacturer of televisions, would introduce a new generation of less costly set top decoders at the January 1986 Computer Electronics Show in Las Vegas. The Samsung product was introduced for $300--at the low end of current decoder prices--but

it is still considered too expensive to generate a great deal of interest in the residential market. Some analysts suggest that teletext will find a market only when decoders can be integrated into the television set at a cost to the consumer of no more than $50 to $100.

Since Los Angeles is the headquarters of CBS's teletext operation, California could be a leading state in the expansion of teletext when it occurs. Some growth of the national service is likely to occur, and it will be located in Los Angeles. The extent of this growth will depend in part on whether local affiliate TV stations only use the national service or supplement it with a local feed. The latter is certainly possible since CBS owns less than 5% of its affiliate stations. If affiliates opt for a local feed, the major growth in teletext employment and earnings is likely to occur at the local stations rather than in Los Angeles.

Delivery of teletext over cable is experiencing difficulties due to technical and business problems. There are technical difficulties with transmitting broadcast teletext over cable systems that lead to distortions in the service, so the signal is not always reliable. Moreover, the cable industry has little incentive to worry about accurate transmission of broadcast teletext because cable operators are unlikely to realize any significant profits from its success. Even when teletext services have been specifically designed for cable transmission and cable operators have been compensated in some fashion for carrying the services, they have not been successful.

Of more interest to cable operators are one-way data services modeled on X*Press, located in Denver, Colorado. This service broadcasts a stream of one-way data (as opposed to page-oriented teletext) consisting mostly of wire services such as UPI and AP. This service has had neither the technical nor business problems associated with teletext and it can be profitable--even with a very low penetration into homes and/or businesses. Individuals with an X*Press modem and their own personal computer can download information from this service and manipulate it on their own machines. Delivery of such one-way data services is not cable dependent. X*Press, for example, uses Equatorial Communications, a California satellite communications firm, to deliver its service into uncabled areas.

VIDEOTEX

Developed in the mid-1970s, videotex is an extension of traditional computer time-sharing services. It is not meant to replace traditional data processing services, but it is designed to function as a stand-alone information retrieval system and/or an easy-to-use interface to transactional and database applications.

Videotex offers at least two advantages over time-sharing services. It is relatively easy to master since users can access information by using prompted English-language commands and selecting options from a set of structured menus or by using other straightforward techniques to navigate databases. Videotex has also reduced the cost and delay time for storing, retrieving, and transmitting medium-resolution graphics and is therefore able to offer graphics as well as textual information.

Videotex is interactive, capable of two-way communications, and is cost effective and easy to implement and use when compared to traditional data processing or information retrieval systems.

Videotex is produced in much the same way as teletext, but instead of continuously transmitting an entire, relatively small information set, the system offers a much larger number of pages in a "host" computer as a database from which users can select specific pages or initiate transactions. Thus, videotex allows for larger database, but also requires the use of two-way communication systems--that is, telephone lines, cable television with two-way capabilities, or new data networks.

As with teletext, a videotex terminal can be a television receiver, with either a separate or internal decoder. It can also be designed as a separate integrated display and keyboard, or, more commonly of late, it can be a personal computer with a modem and decoder. In whatever configuration, the videotex terminal is a two-way communications device.

When first used in the United States, videotex referred to services oriented to the mass consumer market only and accessed by attaching a decoder and modem to a television set or by the use of a dedicated terminal. Most industry observers now use the term "videotex" to refer to any two-way text oriented service that is designed for the untrained user.

Much of the early attention to videotex focused on the consumer market; however, the largest market for videotex today and probably through the end of the decade is corporate America.

Four types of videotex systems are in use in the United States today:

-- Databases that are available to the public through subscriptions

-- Public access videotex--usually stand-alone kiosks located in airline terminals, shopping centers, or hotels

-- Closed user groups, to which subscriptions are limited to subscribers meeting certain requirements--for example, employment with the sponsoring firm or agency, membership in an association, and so on

-- In-house systems, primarily used by businesses and private agencies.

The concept of videotex was created in Britain in the form of a service now called Prestel. Launched by the telephone company to increase phone use, the service involved a centralized database where pages of information, including color and graphics, were transmitted over the telephone lines to be decoded and displayed on a television set.

In the United States, consumer videotex resulted from the convergence of three technologies, computer time-sharing, public-switched data networks, and personal computers. With the founding of The Source in 1978, individuals in their homes could use modems attached to personal computers to dial up information services through Telenet, a time-sharing service. The Source was followed shortly by CompuServe, Dialcom, and ther time-sharing-based systems. The most successful of these services was Dow Jones Information Service, which now numbers 250,000 subscribers. These services had only text information without graphics and were displayed on either monitors or TV sets for those personal computers using TV screens as display devices. In 1982, Knight Ridder, in cooperation with AT&T, began testing what is now known as Viewtron using a frame and color and graphics technology similar to European systems.

This led to a debate over color and graphics, fueled by nationalistic arguments between the British, French, Canadian, and U.S. engineers about standards, has declined. While the NAPLPS standard, championed by AT&T, is clearly the preferred graphic mode in U.S. industry, most services are, in fact, decreasing their dependence on graphics. First, videotex vendors interested in national markets feel compelled to offer services that can be displayed equally well on personal computers and terminals and that are compatible with the limited graphics capability of the average personal computer. Second, there is a strong feeling that graphics should be used only when they make a real contribution to information content. Thus, Viewtron, in introducing its national

service aimed at personal computers, has dramatically reduced its use of graphics. At the same time, Avionics, a service which displays weather maps for pilots, is based almost entirely on detailed color and graphics displays.

The adoption in November, 1983, of a graphics display standard, the North American Presentation Level Protocol Syntax (NAPLPS), by the American Standards Institute and since widely adopted in Canada and the United States, has helped resolve a thorny compatibility problem among various vendors' versions of videotex. NAPLPS is becoming a standard graphics "language" for interactive communications between systems that operate on a wide range of computer equipment. IBM, DEC, AT&T, Honeywell, and Texas Instruments have introduced NAPLPS decoders which allow microcomptuers and other devices to access videotex services.

The future of two-way, interactive, easy-to-use services in the consumer and business markets in the next five years is likely to be driven primarily by the ability of vendors to offer useful services at a reasonable cost through widely available access devices.

As mentioned earlier, the business market represents the major growth opportunity for electronic services over the next five years due to increased use by businesses of electronic databases, internal information systems, and communications with suppliers and customers. We expect revenues for these services to grow from approximately $2.3 billion in 1985 to over $5 billion in 1990. Demand for consumer services, on the other hand, is likely to remain low for the next five years with revenues remaining under $500 million in 1990. Beginning in the early 1990s, it is possible that growth in demand for business services will decrease as the business market matures, and consumer markets will grow to the point where they represent a significant source of revenue for two-way interactive services by 1995.

One videotex arena in which California can be considered among the leaders is in public access videotex. Originally conceived as a tourist and shopping information medium and located primarily in airports and shopping centers, public access videotex is evolving, in the vendors' eyes at least, toward a merchandising, market research, and direct sales medium. While it is probably safe to say that none of the public access services are currently operating in the black, a recognized leader in public access videotex, Chonicle Bay Area Teleguide, is based in San Francisco.

COMMITTEE OF CORPORATE
TELECOMMUNICATIONS USERS

CALIFORNIA LEGISLATURE

ASSEMBLY COMMITTEE
ON
UTILITIES & COMMERCE

TESTIMONY OF
KENNETH L. PHILLIPS, CHAIRMAN,
LEGISLATIVE AFFAIRS

COMMITTEE OF CORPORATE TELECOMMUNICATIONS USERS

"The Future of Electronic Commerce in California"

June 25, 1986 Sacramento, Calf.

My name is Kenneth L. Phillips, I am Chairman for Legislative Affairs of the Committee of Corporate Telecommunications Users, a non-profit group which represents some thirty of the nation's largest users of telecommunications. Interestingly, some of the companies are quite small with under 300 employees, while others have tens of thousands. In all, the Committee represents over 10% of AT&T's interstate revenue base, and most of the largest customers of the Regional Bell Operating Companies. CCTU members have presences in all 50 states, with the greatest number of locations being in New York and here in California. I am also Vice President for Telecommunications Policy at Citicorp.

By showing a willingness to examine the public policy issues surrounding "The Future of Electronic Commerce in California," the Committee on Commerce and Utilities has taken a far-sighted approach to what may well be the most important yet complex set of issues effecting local economies through the 1990's. While my comments today cannot avoid just scratching the surface, I would like to suggest, as we move increasingly further along towards advanced telecommunications and information processing environments, to the so-called "information age," that a number of areas of risk will emerge:

- Information Property Rights
- Equitable Public Access
- Privacy Implications
- Security Issues
- Intellectual Property & Copyright Implications, and
- Telecommunications Regulatory Implications

In the briefing materials setting the stage for this important hearing the Committee staff cites several projects and technologies comprising the evolving playing field for Electronic Commercial Systems. I would like to take one step back and rather than comment on specific technologies such as videotex, address some issues of major importance to the future fiscal and commercial health of states such as California, which are clearly in the lead, in providing both the technology base and distribution channels for these services. If one lesson can be learned from tracking the history of advanced technologies, it is that predicting which specific applications, or clusters of technologies will ultimately emerge, has worse odds than the State Lottery.

With both the California and national GNP becoming increasingly a function of service rather than manufacturing industries, the use and dependance upon digital telecommunications and distribution methods grows exponentially. Whereas the competitive edge until recently was largely determined by the ability of a supplier to provide access to goods or services directly, the rules of the game have now changed. Today, customers of brokerage houses, banks, airlines, even individual citizens interacting with government agencies seek instantaneous access to information about assets rather than to the assets themselves. The result, of course, is an explosion in the amount of information being transported. Advances in fiber optics, broadband digital radio technologies, and high speed digital switching have all been in response to the growth in demand seen thus far, and also in anticipation of the ballooning yet to come.

Today, I want to focus on one particular issue which, I believe, has the most far reaching implications of all that I have just mentioned: Intellectual Property Rights and Taxation as they relate to the future diversification of telecommunications and information. And, from the outset, I'd like to offer a word of grave concern over even the possibility of considering the taxation of information. This implies the taxation of content of electronic messages by government, and cannot help but raise the specter of privacy violations. But first a more practical issue must be addressed: how does one go about the valuation of information? The fact that more information is being shot around at higher speeds does not necessarily mean that the net value has increased. I would like to suggest that the classical gestalt notion of the "whole being greater than the sum of the parts" applies to the valuation of information, or more precisely, meaning. Claude Shannon and Norbert Wiener, the two "fathers" of information theory did not agree on much, but one point of confluence was the idea that information contained meaning, or value, if and only if its possessor was able to initiate a choice between two equally probable events or outcomes AFTER receiving information, which he was unable to do BEFORE. In other words, if I were to transmit to everyone in this room the sentence, "WE ARE IN SACRAMENTO" a thousand times, at every conceivable speed, via every possible protocol, regardless of whether it was over a plain old telephone, or through some space age videotex terminal, I would have communicated nothing, and clearly the value of the information remains zero.

As information describing real-time events, be it news stories, foreign exchange rates, stock quotations, transportation schedules or even entertainment productions, crosses geopolitical boundaries at velocities approaching the speed of light, the information itself takes on characteristics having properties similar to those encountered when describing subatomic particles in physics. Hopefully though, this will be a great deal easier to understand. A new dynamic must be factored in to the rate equation when we look at the valuation of information: that of

HALF-LIFE. Half-life is a measure of time. It is the amount of time required for a particle of given energy to essentially lose half of it through a number of processes. Often entropy plays a major role. Or, in the context, of information, I would suggest that we must factor in the amount of time required for a quanta of information to lose one-half of the value of its meaning.

As the speed with which information travels across geopolitical boundaries increases to the speed of light, the half-life of its value becomes increasingly short. In a sense the actual advances in technology we employ, play into the concatenation of the information half-lives, as information becomes more volatile, hence requiring yet more efficient networks and transmission media. The cycle then repeats itself.

Let's put this into concrete terms. Years ago, for example, foreign exchange traders used to get up at ungodly hours of the morning in the United States in order to be at their communications turrets when the European markets opened. In this manner, they would obtain the "spot" or opening price for the day as early as possible, for use in making bids and quotes for their domestic customers. The frequency with which this had to be done was a few times per day. With the advent of interconnected online systems using international leased lines, this information began flowing at much higher frequencies. In fact, some international quotation systems being used here in California retrieve information several times per minute from points all over the globe.

Now, the question becomes, "What is the effect of this increase in the velocity and frequency of information transfer on its value?" Clearly, the information becomes much more valuable, but for a much shorter period of time. A stock quote three hours old has no value, nor does last week's television listings. Indeed, information is unlike any other commodity. It has a shelf-life, if you will, of seconds, as a rule. Current law restricts taxation to the physical medium on which information can be stored, and for good reason. While the presence or absence of meaning can be determined through the test I just mentioned, the extent to which meaning within information is valuable is subjective, and would vary widely depending on who is using it, and for what purpose. For example, stock quotations of companies whose shares I don't own nor have any interest in purchasing, have no value. Consider also the problem of information existing simultaneously at several locations, as it does in advanced point-to-multipoint telecommunications networks.

Most countries other than the United States suffer from what I call 'socialized telecommunications,' that is, telecommunications services are provided by the same administrative branch of Federal government which operates the post office and, in most cases, revenues from telecommunications are used to cross-subsidize grossly unprofitable post office operations. Germany for example comes closest to the taxation of information since the Deutsches Bundespost

requires that nearly all data communications across its borders utilize a nationwide packet switching network which bills its users based upon the quantity of bits contained in transmissions. The result has been an exodus of private data network hubs and the emergence of "data havens," in Brussels and London. The net effect has been to exacerbate an already serious unemployment problem in Frankfurt and Hamburg.

New York State, prompted by New York City, in turn nudged along by the local telephone company has already passed a Chapter Amendment reclassifying some telecommunications equipment as "Real " property, as opposed to "Personal" property, thus subjecting it to some of the highest real estate taxes in the land. I would note that this comes at a time just as the local telephone company is introducing an entirely new Centrex tariff---Centrex, you will recall, is a totally central office-based service which would carry no end-user tax burden, as opposed to today's trend away from carrier provided switching equipment in the form of users purchasing large PBX systems located on their own premises. New York states that the rationale for the reclassification of telecommunications assets is the revenue short-fall created as a result of asset revaluation and apportionment between the local operating company and AT&T, with a much lower taxable base after divestiture than before.

What this dangerous approach fails to take into account, aside from the overall revenue implications of the change, which are negative, is that users, who have made enormous capital investments in telecommunications equipment, had nothing whatsoever to do with the divestiture process, which was a legal settlement of an antitrust action, rather than a regulatory outcome. There is no reason, therefore, why users should become the ultimate guarantors of tax revenues as a result of a circumstance over which they had no control, and in fact has resulted in much higher costs. What is even more astonishing in this approach, is its failure to take into account the vast broadening in the endeavors that the local telephone companies are now permitted to engage in through the Line of Business Waivers granted under the Modified Final Judgement of the divestiture process.

The Dole legislation offered in Congress last week seeks to remove just this power of waiver from the Courts, and transfer it to the FCC, with the intended effect being a further liberalization in the lines of business the local telephone companies are permitted to enter. Many of the new lines of business the telephone companies are being permitted to enter are in direct competition with existing services provided by the telephone company's customers who would now have to reel under the effects of a substantial and new tax burden.

The Dole Bill further errs by tacitly placing the responsibility for enforcement of a legal agreement, the terms of divestiture, with a Federal regulatory agency, when in fact it clearly belongs within the Judicial world. If revenue shortfalls have indeed occurred as a result of divestiture, then clearly they should be made up from those who caused them, and not the telecommunications user who holds essentially the status of the "innocent bystander." If the local telephone company is allowed to diversify into such things as owning and operating retail computer stores, consulting companies, software houses, and the like, clearly this is where the tax shortfalls should be made up from, and not either business or residential users of basic telephone services.

Thank you.

INTEGRATED COMMUNICATIONS SYSTEMS, INC.

June 27, 1986

Hon. Gwen Moore
Chairwoman
Assembly Committee on Utilities and Commerce
State Capitol
Sacramento, California

Re: Hearing on Future of Electronic Commerce in California

Dear Ms. Moore:

I'd like to take this opportunity to thank you for inviting ICS to participate in the Electronic Commerce hearing and to expand on one aspect of the testimony.

I believe your concern about the relatively small numbers of users forecast by most witnesses was, as I mentioned, in part due to the fact that the hearing quickly moved to equate "electronic commerce" with videotex.

While it is certainly true that the demonstrable market for videotex is small, the market for products and services which fit the committee's definition of electronic commerce (the ability to communicate and to exchange information via telecommunications using computing) is large today and promises to grow rapidly.

For example, although it is rather mundane compared to some of the elaborate products mentioned at the hearing, look at the growth of audiotex services, ranging from 976 programs to Touchtone phone-based systems for banking, airline information, and financial information. These represent electronic commerce too. Thinking of each Touchtone phone as a universal (albeit simple) terminal helps to grasp the potential already available in most homes and offices for access to electronic commerce.

My own belief is that increasingly sophisticated audiotex will lead the way to videotex's commercial success.

Yours truly,

Richard Wood
General Manager

Integrated
Communication
Systems, Inc.

1000 Holcomb Woods Parkway, Suite 412, Atlanta, Georgia 30076 (404) 587-1448

STATEMENT
BY
INTEGRATED COMMUNICATIONS SYSTEMS, INC.
TO THE
UTILITIES & COMMERCE COMMITTEE
OF THE
CALIFORNIA STATE ASSEMBLY
JUNE 25, 1986

Integrated Communication Systems, Inc. (ICS) headquartered in Atlanta, Georgia, is the developer of TranstexT, a user-friendly, interactive network that enables consumers to perform a variety of transactions from their home. A "Com'Set" installed in the home interfaces to familiar communications tools such as the telephone and TV. Using these, consumers view and interact with applications (databases) like home (energy) management, transactions, TV/entertainment, information and communications. A local public packetswitched telephone network, i.e., BellSouth's PulseLink, is the data delivery vehicle between the home and the information and service providers such as banks, the utility companies, newspapers, and others. Further discussion of the criticality of a rapid evolution of the Local Exchange Carrier's (telephone) data network - to any consumer-targeted information service - follows below.

First, a word or two on the composition of ICS itself. ICS was borne of a consortium of companies studying the potential inherent in information technologies to effect significant advance in consumer energy management. The Southern Company, BellSouth and National Data, all early participants, have been joined by others via ICS' Participant Development Program. This program is designed for those interested in TranstexT to receive market research results and to ultimately be the implementors of TranstexT in their markets (regions). Currently, there are approximately 45 companies from throughout the U.S. involved in the Participant Development Program, including Pacific Gas, Pacific Power & Light, Southern California Edison, Pacific Bell, and GTE.

The energy focus of the original study has been integrated into TranstexT via the home (energy) management application Southern Company has designed for the network. Through TranstexT, Georgia Power offers a four-tiered, variable spot rate. This allows consumers to adjust their heating and cooling preferences to the rate in effect at the time. Major electric appliances such as the hot water heater may also be adjusted to take advantage of lower rates. Consequently, consumers may realize more value for their energy dollars spent as TranstexT provides real time pricing for real time electric energy consumption. Consumer control and choice are also introduced into energy purchases as a result of TranstexT.

In addition to the variable rate, the energy application offers remote meter reading, as well as bill reviews, forecasts, payment, and usage history. Thus, TranstexT can be characterized as the state-of-the-art approach to dealing with the complex management mandate that both the California Energy Commission, as well as the California Public Utility Commission, have promulgated.

Responding to both its regulatory mandates, as well as its own internal strategic objectives, electric utility companies have found TranstexT to be a promising means of load management and marketing, market research, plant deferral and remote meter reading, among other things. ICS' TranstexT demonstration is yielding extremely useful market and network development research which are being used to determine how TranstexT will be commercially offered. So far, consumer acceptance of TranstexT has been positive. Mass market appeal is expected as a result of the significantly expanded control yielded both to the consumer and its supplying utility, of the comfort, convenience, and costs associated with energy consumption. The demonstration is expected to conclude in December, 1986. At that time, plans for commercial implementation will be solidified.

The foregoing remarks describing TranstexT, and the potential value of it and other advanced telecommunication-based services, were to lend credence to ICS' appeal to the committee for continuing freedom on two important areas:

1) ICS holds itself out as living proof that joint planning and development is essential to the early arrival of information technologies at a consumer level. This fact is borne out by the nature of the sole survivors of the so-called videotex industry: i.e., multi-company composition of the various "consortia" represented at these hearings. Therefore, nothing should be done that would tend to further impede these "collaborative" efforts that are being executed to effect a mass digital telecommunications infrastructure.

2) It is quite apparent to ICS that mass "telecommunications" will, by necessity, require the active involvement of the Local Exchange Carriers (LECs). Consequently, the issues become extremely complex. ICS is concerned about the overlapping constraints applied by the FCC, the MFJ (via the Consent Decree Court), and the state regulatory commissions. Inasmuch as the very nature of products like TranstexT imply an "enhanced" LEC network, and inasmuch as the FCC and MFJ policies regarding enhanced network regulations are in flux, ICS is imploring forwardlooking local policy makers to refrain from putting additional obstacles in the path of LEC networks' evolution. In particular, the LEC must, within reason, be free to pursue whatever line of business, regulated or otherwise, which best supports its historical and enduring mandate to produce economical and equal access to an ever expanding universal service telephone communications infrastructure.

Thank you for your attention and your invitation to hear ICS' views on this most important subject.

For information contact: Richard Wood
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GRASSROOTS CALIFORNIA

THE FUTURE OF ELECTRONIC COMMERCE IN CALIFORNIA

TESTIMONY TO ASSEMBLY COMMITTEE ON UTILITIES AND COMMERCE

JUNE 25, 1986

By
Jeffrey B. Johnson
President
Grassroots California

Grassroots California is an electronic information service for California agribusiness. We were founded by three major California newspapers in March of 1984, and have been commercially selling our service since February of 1985. We serve an agricultural market estimated at 80,000 farmers (although only 30,000 to 35,000 are significant commercial operations). Presently, Grassroots has almost 1,000 users throughout the state and is endorsed by six major farm organizations. Over 50 local and 10 national advertisers use Grassroots to bring product information to our subscribers.

Grassroots uses a technology known as North American Presentation Level Protocol Standard (NAPLPS) developed by AT&T. This technology permits encoding full color graphics and storing this on our computer for access by subscribers through local telephone lines. Subscribers to Grassroots are charged $12 per hour for on-line usage with no monthly minimums. Access to the service is via toll free telephone network. Subscribers may access the service using their own personal computer or a dedicated terminal leased to them by Grassroots for $10 per month.

To support the costs of the service, Grassroots solicits advertising from both local and national accounts. Because our

technology permits an interactive relationship with potential customers at relatively low costs, advertisers have found this medium an efficient way to deliver their product information. Advertisers can sponsor certain content on the database for an annual fee or pay for advertisements only when a subscriber elects to view them. An advertiser electing this option pays $.25 each time his ads are viewed by a subscriber and receives a statistical demographic report each month summarizing the accesses to his ads. Each of our subscribers voluntarily provides a demographic profile of his business, enabling us to give an advertiser a very focused feedback of the type of viewers of his advertisements.

Grassroots is a very small segment of the newly emerging videotex industry. We participate in a very specialized niche of the business videotex services as opposed to the consumer videotex services. As an industry, we are in an embryonic stage. Millions of dollars have been spent on system development with little, if any, positive results to date. Industry projections of subscribers have been grossly overstated and the impact of videotex is limited to the PC "techie" and some selected business markets. Even if the estimate of 500,000 current subscribers to videotex services is correct (and it probably includes a considerable overlap amongst services), this represents only 3% of the installed personal computer base.

After almost $100 million of investment, three major consumer videotex services, Gateway of Times Mirror Corporation, Viewtron of Knight Ridder and Keycom of Chicago Tribune and Centel, have all failed and closed their doors this year. Numerous reasons exist for their failure, but the overriding one is they were unable to convince

a mass audience to pay for the content they delivered. The technology in hardware and communications is still evolving and is much too expensive for most broad based consumer applications. To my knowledge, no videotex services are more than marginally profitable and most are still losing money.

In discussing the policy concerns of this committee with regard to the future of electronic commerce in California, it seems that it would be appropriate for the State to first define its major objective. The future of electronic commerce is largely dependent upon the efforts of numerous entrepreneurial companies like ourselves combined with a business and regulatory climate that encourages and fosters our growth. The key technologies of hardware and communications are still changing and further dramatic improvements are needed. Regulatory action in communications is necessary to reduce data transmission costs and continued research and development by large computer companies is required to develop an inexpensive terminal. Public information providers need to be encouraged to set up databases and transmit information electronically. The benefits from this budding electronic information revolution will permit a broad base of our population low cost access to thousands of information providers. We think that California can become a leader in the electronic information industry as it has in the computer and aerospace industries in the past. We believe this should be the objective of the State.

Assuming the State wants to become a leader in the electronic information industry, then the policy questions can be resolved more easily. In general, we recommend the State adopt a nurturing stance

with this industry and attempt to improve the climate in which these emerging companies are struggling to survive. Until this industry takes better shape and matures, we do not believe regulatory actions are needed. As long as the consumer is able to choose voluntarily use of electronic information services, the market will drive this industry towards the most efficient, broad based service. Not only are technological factors and market information requirements still to be resolved, a substantial cultural/traditional change must take place among users. Very few people are familiar with or using computers today and yet the industry itself is now being classed as maturing. Most adults today are reluctant to change their information gathering habits without strong stimulus such as provided by the French Minitel System and their telephone directory service. While many of our youth are becoming proficient in computer applications in school, their impact on the electronic information industry is still years away. We, therefore, strongly urge that extreme restraint be taken in setting up new regulations for this fragile, emerging industry.

1. Consumer Privacy and Protection

One of the major advantages of the electronic information delivery systems is its ability to track access to information by its subscribers. There obviously is a danger in permitting unrestricted access to subscriber activities but this is largely controlled by the marketplace itself. As long as subscribers are voluntarily participating in these various services, it seems the risks are low and the privacy of the individual can be controlled by the user, i.e. by not subscribing to the service.

In our society, most subscription mediums such as magazines and

associations regularly sell mailing lists of their subscribers to interested third parties. In fact, the State itself provides access to drivers license information and other participants in public programs. Without the support of advertising, our service costs would be substantially higher than they are today and would have to be borne totally by our subscribers. We believe existing laws and regulations are adequate to curb abuses of the electronic information services at least in their current stage of development.

2. Competition and Industry Structure

The industry consists of a information provider, a distributor, a system operator, a network operator and the end user. Today, many participants in the electronic information industry provide some or all of these services. Grassroots acts as a distributor, system operator and network operator as an example. Ultimately, we believe the industry will focus company activity in each of the areas as expertise dictates. Grassroots probably will focus on repackaging and distribution as other more efficient network and system operators develop. While it is apparent that many large companies are becoming actively involved in this industry, we believe this is healthy and necessary for the evolution of the technology. Larger companies obviously have significant advantages and resources to develop the most efficient system and network operations. On the other hand, large corporations will never control the thousands and thousands of potential information sources. Today it is estimated there are over 1,000 computer databases presently available and these are growing.

In fact, the trend in the current videotex industry is to seek out independent information providers and make available the system

and networks for distribution of this information to any interested user. General Electric and Compuserve have spearheaded these activities to make their services more attractive to subscribers. The role of repackagers and distributors such as Grassroots will grow as selected subscriber markets are developed. Obviously, our current subscribers could obtain National Weather Service information, Department of Water Resource weather data, University of California pesticide information and Federal/State Market News prices independently of Grassroots. However, they would have to master multiple database rules and deal with a wide variety of presentations. Grassroots serves the function of grouping this type information together in a common format as dictated by our users. We believe that the industry with major players such as IBM and AT&T and General Electric will remain competitive and allow the development of a wide variety of new information companies such as Grassroots.

3. Equity of Access

At the present time, equity of access to information in our society is largely dictated by one's ability to pay. In almost all areas, those who can afford it can purchase superior information or services. Certainly, even in consumer areas those with televisions and personal computers and VCR's and calculators have an information advantage over those who don't. While this may be unfair to some who are unable to afford the equipment or costs of the information services, it is a fact of life. Yet, the marketplace is working towards providing as large a population as possible with required, basic information services. An example is the personal computer which has technically evolved into lower and lower prices, permitting more

and more affordability to a larger number of people. Obviously, commercial interests have a vested interest in increasing the size of their markets. The experiences at the videotex services indicate most consumers will not pay much more than $20 a month for information unless it is of a very specialized nature and used in business applications. To justify the millions of dollars of development of these systems, it is obviously necessary that a very large marketplace be available. The concerns that any of these services will develop and exclude a sizable portion of their potential customers is not realistic. If the marketplace is free to react, the industry will provide services needed to all. If the State determines that some segment of the population is underserved, then we suggest the State subsidize those as needed, similar to other programs such as our education and medical sectors. Forcing videotex services to provide equal access regardless of ability to pay will necessarily doom the development of a viable industry.

4. Information Property Rights and Taxation

We support the development of laws protecting information providers and system operators from unauthorized access or illegal distribution of proprietary information. We also believe that government information be made available equally to all interested parties. The costs of this information should take into consideration the cost of producing the information as well as the cost of accessing the database. Redistribution of this information should not be restricted. We do not support taxation of information transfer. Not only would the costs of such a tax be passed on to end users as increased subscription fees, the revenues at this time would not be

significant and would have a adverse effect on the growth of this industry. We also believe that it violates certain Constitutional rights of freedom of speech. Obviously, if the objective of the State is to promote the development of an electronic information industry, it should seek to eliminate regulatory and tax obstacles to its development.

5. Changes in Labor Management Relations and Labor Law

We believe the use of electronic information to permit telecommuting and teleworking is generally positive. Substantial benefits to society can result if more work can be done in the home as opposed to central office spaces. Reduced commuting costs, less congestion, pollution and transportation expenditures can be the results of increased telecommuting and teleworking. More family time together plus access to a much larger work force are other pluses of telecommuting. While Grassroots is not directly involved in this activity, we believe abuses are minimal. Given the fact that the industry is so tiny it is hard to imagine significant problems can occur that can't be resolved within our current laws and courts.

Grassroots recommends the State adopt a broad general policy of promoting and developing the electronic communication industry in the State. It offers the possibility of substantial new employment and significant benefits to Californians. Because of the industry is just emerging and has numerous technological and market related evolutions yet to come, we do not recommend regulatory controls until the industry has matured and they are shown to be needed. With appropriate support from the State, the future of electronic

information in California is bright but still at least 10 years from having a significant impact on the average consumer's household. It is good that the State monitor the industry's activity at this time, but should limit controls until absolutely needed.

Grassroots recommends the committee take action in the following areas:

1. Encourage the creation of new databases and the use of electronic information transfer within all public agencies. Numerous computer systems within the State agencies create data of broad interest to many but are inaccessible because of bureaucratic red tape. Potential for paperless transaction processing exists in many areas but are opposed by some as too radical or too soon. AB 3036 is an example of an attempt to move the processing of tremendous amounts of paper to electronic format and should be supported. In this regard, the committee should examine the need for legal verification of forms. Electronic processing of data is restricted by outdated laws and business practices requiring original signatures, etc.

2. Support lower data transmission communication costs. The cost of transmitting data is a significant expense in delivering information to users. Currently, data transmission costs are the same as voice transmission charges. Data transmission fees should be reduced to reflect their actual costs and the telephone companies encouraged to provide high speed communication networks.

3. Promote private distribution of public information whenever feasible. Because private commercial companies are driven by market needs, the packaging and distribution of necessary information is more clearly tailored to the marketplace. Public agencies' distribution of public information is not market driven and therefore not well tailored to the end user's needs. While all public databases should be available on an equal access and equal cost to any interested user, private companies can more efficiently distribute this information to end users in a format that is readily usable.

4. Mandate that future purchases of computers by State agencies should include purchase of modems and telecommunication sofware. The use of word processors and telecommunications hardware and software is essential to the growth of electronic information industry in California. Many State offices are equipped with personal computers but most do not have modems or use word processing software to create documents. State standards should be established for appropriate software and hardware to facilitate communications.

5. Establish a State-Sponsored Electronic Information Advisory Board. As a forum for dialog on issues surrounding development of the industry in California, this Advisory Board would enable the public and private sectors to work jointly on technical and political issues affecting the industry.

THE WELL (WHOLE EARTH LECTRONIC LINK)

The WELL

Whole Earth Lectronic Link

27 Gate Five Road, Sausalito, CA 94965

415/332-6106 (modem); 415/332-4335 (voice)

Statement of John Coate to the Assembly Committee on Utilities and Commerce

June 25, 1986

Thank you for inviting me. I am with the WELL, based in Sausalito. The WELL is a computer conferencing and electronic mail system that brings a sophisticated and versatile communications tool to people in the Bay Region for a revolutionary low price.

We have come here today to discuss something that is not only inevitable but has already begun: the Computer Revolution. I hope that I can provide a perspective that will assist in the creation of a legal framework that assures a smooth and fair transition into the "Information Age".

Every day more and more information is entered, stored, processed, and moved instantly all over the world. Much of it is in the form of raw data and numbers, but a significant portion is person-to-person communication. When people talk to each other using their computers, even when some of the technology involved is considered data processing, they are communicating, and their communications should benefit from the same guarantees of the Constitution as right of privacy, assembly, and freedom of speech.

Many critics of the computer revolution are concerned that the people who will benefit from it are those who need it least-that it will only serve to perpetuate an elitist class. But if it is truly to be a revolution, then

everyone must be able to participate and make their contribution. On the WELL very inexpensive, or even used equipment can share the power of an advanced multi-user system, helping put enormous computing resources in the hands of everyone. The more we can increase the free flow of ideas and information among all the people, the more we can raise our collective intelligence and become a stronger, saner, and more creative society. Personal computers are already playing an important role in widening the "community of the concerned" by eliminating barriers of prejudice in the discussion of ideas and helping all kinds of people have a voice in modern society.

The WELL is a place where vital educational information is exchanged in three fields: formal academics, public awareness, and the transfer of up-to-date technical information.

Students and Teachers all over the Bay Area use the WELL to aquire excellent free public domain software that, in these times of bugetary constraints, is sometimes the only way to get these essential learning tools to all the students in a class. At a more advanced level, the WELL is part of the USENET network that connects major universities and research facilities all around the world.

The WELL is also a useful forum for educating the general public, with discussions of legal, political, and environmental matters. Users can engage in lively debate with other citizens on pertinent issues or use the WELL to talk directly with Congressman Ron Dellums' office, the Sierra Club Bay Chapter, and Citizens for a Better Environment.

The WELL has many technical conferences, including computer hardware and

software, telecommunications, and artificial intelligence, where designers and developers share information and expertise. It is a recognized repository of the most up-to-date information on the new computers and how to write for them.

A new development of telecommunicating on the WELL has been the creation of a true online community where the people don't share backyards and bikepaths, but often share their thoughts and feelings in a more personal way than sometimes seems possible "in person".

People use their computers to actually get to know each other and to break down feelings of lonliness and isolation. In addition to the tremendous variety of practical consumer information available, you can join conferences about parenting, aging, spirituality, and other personal development areas where people really reach out and open up to each other. Many of us have become friends online without having actually met in person. Some friendships have also dissolved online. But it is that ability to have such free and honest exchanges at a cost that anyone can afford that gives it such vitality and lets the Information Age keep the human touch.

We should recognize that a key characteristic of the Information Age is an increased efficiency in transfer of information. Written records of all exchanges, the elimination of "telephone tag", the ability to have online conferences that reduce travel time and expense, and technical considerations such as packet switching and digital technologies ensure that data communications will soon be the primary medium of information exchange for both businesses and individuals. We do not think regular telephone billpayers should have to subsidize the development of data communications systems, nor

should data transfer be penalized at the expense of Plain Old Telephone Service: rates for data communications should be determined by the true cost of providing the service.

If California is to lead the way in both technology and progressive social change, then we need to encourage new technologies in such a way that they can really benefit everyone, otherwise we will never know the real potential of our society. It is still too early in the Information Age to know what rules and regulations will be needed to guarantee the public welfare. I would suggest that the laws currently in place go a long way in affording this protection, and would hope that we don't unduly restrict the growth of this infant before we learn what its eventual form will be.

We feel that consumer protection, equity of access, and individual rights will benefit most from an open market where data communications are brought to the people for the lowest possible cost that is fair and reasonable.

PACIFIC BELL

ASSEMBLY COMMITTEE ON UTILITIES AND COMMERCE

INFORMATIONAL HEARING ON
"THE FUTURE OF ELECTRONIC COMMERCE IN CALIFORNIA"
JUNE 25, 1986

TESTIMONY OF JEFF B. RICHARDS

BIOGRAPHY

I am currently employed as Videotex Project Manager, in the Marketing Department at Pacific Bell (a Pacific Telesis Company) and develop interactive information services recommendations for Pacific Bell. I was an early member of Pacific Bell's "Project Victoria" task force and previously worked as chief architect of Pacific Bell's internal videotex system.

I am a member of the Board of Directors of the Videotex Industry Association (VIA), and chair VIA's Communications and Membership committees.

INTRODUCTION

Thank you for inviting me to appear. In my comments, I will touch upon the state of that infant entity variously known as the "information industry" or "videotex industry".

CURRENT STATE OF ELECTRONIC COMMERCE AND VIDEOTEX INDUSTRIES

When we speak of electronic commerce, and specifically videotex, we're talking about a very new medium: a screen-based, two-way set of services and applications that may incorporate information retrieval, transactions, and communications. Commonly, markets for videotex in the United States are divided into business videotex, consumer videotex, public access videotex and corporate in-house videotex.

In its simplest sense, videotex is characterized by non-exotic technology, intentional ease of use, and relative low cost (compared to traditional computer time-sharing). In the

U.S., technology has often been the driving factor behind commercial videotex development, rather than the creation of applications or marketing approaches that meet demonstrated consumer needs.

On the other hand, there are some remarkable but little-publicized success stories with videotex on a more regional and local levels: hundreds of user-driven computer bulletin boards are available by dial-up telephone today. Professional associations, social organizations, and information entrepreneurs are accessible to interested consumers. Advertiser-supported public access systems, such as Bay Area Teleguide and Sacramento Teleguide, are moving forward with increasing numbers of public terminals and new innovations in service, such as instant creation of coupons on demand.

Today, U.S. videotex is moving in a number of positive directions despite the recent and widely-publicized withdrawals of the Knight-Ridder and Times Mirror consumer videotex services. The notion that early and widespread usage would occur first in the home has been discarded; the media has focused on this lack of success rather than today's successes in the public access and business areas.

Worldwide attention is focused on the first approach to bring videotex services to residential users -- "Teletel". The French network provider sought to provide a mass market of residence and business users as a prerequisite for establishing a widely used videotex system. By providing easy-to-use dumb terminals -- more than 1.6 million at last count -- to residential users, and by making such terminals available to businesses, France has created a new way of sending and receiving messages, looking up information, and performing routine transactions. This last March, the more than 3,000 independent videotex services logged more than 20 million calls, in the process collecting over $8 million in fees.

However, there are distinct differences between the French system and our own telecommunications industry in the United States. The key drivers there included the ability to impose a standard on the marketplace for terminals and interfaces, and a long existing need to update France's antiquated method of producing and distributing directory information.

Although there is much to learn from the French system, we also bear in mind the uniqueness of our own California marketplace realities.

Videotex services, in this country, are still in their infancy. Pacific Bell's focus is to provide the ubiquity or "critical mass" necessary for videotex services to become successful. This is one of the main factors in the success of the French system.

At least four elements are required for "critical mass" to be achieved in the residential environment, which are:

1 Meaningful Content and Applications
2 Affordable Technology
3 Widespread, Simple Access
4 Consumer Awareness

No one company or entity can provide all of these success factors. But the local telephone company, we believe, is ideally positioned to play the role of facilitating these functions and providing the economies of scope and scale to make videotex successful, and available both to information providers and to all users.

The public switched network can provide the small user with access to commercial videotex services just as private facilities already serve large users with sophisticated powerful operations for payroll, inventory management, and so forth.

I cannot, however, predict what the market will provide the consumer. We have seen the indications for the future through services already available, albeit on a limited basis. These are services such as:

- information retrieval - allowing fast access to news, weather, and community or special interest group information
- transactions - new ways to shop or bank at the home or office
- messaging - keeping in close and constant contact through electronic mail
- telemonitoring - which can keep homes or workplaces safe and remotely controlled even when while unattended

THE FUTURE

If there is one lesson for the videotex industry in 1986, -- and it is both a humbling one and a great challenge -- it is that we must allow the needs of the consumer to dictate the shape of the industry. Consumers will not buy or lease terminals for their own sake if content and services are not meeting real needs of consumers -- that is, to do better through electronic means that which is already done today through more traditional methods.

In summary, the market for videotex services (retrieval, transactions and messaging) will continue to grow, but at a slower pace than was predicted until this year. Innovators in any new medium on the scale of the electronic services we've discussed today will necessarily paint an optimistic picture. Still, the potential commercial and social benefits of electronic services are substantial if not yet widespread.

While companies like Pacific Bell focus on lowering barriers to information vendors and services users, policymakers should be sensitive to the amount of time necessary to develop content and applications having genuine, and sustained appeal to the larger marketplace. For its part, Pacific Bell will focus on providing widespread access to such services as they are made available.

For example, we are following closely the two schools of thought on innovations which will allow home users to have videotex without major capital investment. On the one side, the "Personal Computer as terminal" is a device already in millions of California homes and offices, and can provide access to this range of services we have discussed. The other school says that the very cheapest "dumb" terminal (perhaps connected to the home television) is the fast way to that "elusive" critical mass in the residential setting. I think that the jury is still out, and this may be a case of both solutions being right for different sets of potential users. We will seek to have the dumb terminal and the smart PC be effective devices on the network in either case.

THE ROLE OF GOVERNMENT

In response to your questions about the role of government, I have a few informal comments:

Government may be seen as having a hierarchy of responsibilities in its oversight telecommunications: First and foremost, the constitutional protections of free speech and privacy; second, consumer protection through its general laws, and third, more specific regulation (common carrier regulation) if and when there is an overriding need for government to play a role.

Videotex undoubtedly has the potential to raise some of these issues in the future: there are constitutional concerns, some of which are raised periodically by legislative proposals to limit the content of messages which are shared over videotex systems -- or to require the monitoring or deletion of certain messages by the host or carrier of the videotex service.

There are obvious consumer protection concerns, some of which can be suggested by traditional commerce: fraud, failure to deliver goods, disclosure of information, bait-and-switch, tactics, and other unethical practices.

But is is not appropriate to second guess the business community, the technology, or the needs and desires of the user with premature legislation which could chill a developing industry. There are dangers in acting too early, such as driving up the cost of developing and providing services; the creation of unforeseen liabilities which may cause providers to abandon their investments; or the danger of creating so many rules that industry and its users cease to innovate.

It would be devastating to the future of videotex for this industry to lose its spirit of innovation and discovery because of the premature concerns of the few. Rather, videotex should be watched by policymakers, evaluated by the business community, and tested by the consumer.

Existing laws will ultimately be amended where they are found insufficiently broad to cover electronic commerce, but such changes -- particularly in the area of industry regulation -- should only follow a demonstrable record showing that existing law is inadequate.

A FINAL OBSERVATION

Pacific Bell is committed to seeing the videotex industry grow, and especially with providing all users, large and small, with high-performance, low-cost access to the services they want and need to use. In light of the success factors I mentioned previously, videotex services will not blossom overnight, but rather evolve from local, regional and national offerings. And there will need to be continuing, unrelenting innovation on a number of fronts -- and cross-fertilization in this still small industry -- to bring a rich universe of offerings to the mass market as well as the niche markets. Videotex is a conscious focus for Pacific Bell -- with or without us videotex will continue to evolve. As a company, it's in our self-interest that videotex succeeds in our diverse and forward-looking marketplace. If consumers are bored with or abused through videotex services offerings, we lose too. And if Pacific Bell stops work on the "high-performance", "low-cost" development focus, we think everyone loses.

Pacific Bell sees a great future for videotex in California. I would call us pragmatic optimists, knowing that there is tremendous potential for this new medium and the personalization it beings to both information and technology. We too at Pacific Bell are users of videotex in its many flavors today, within our company and as individuals in

our homes. Our goal is not to emulate others, but foster creative and critical dialog, to understand market forces, and to make sure that California is among the first of the United States to realize the benefits of the emerging, entrepreneureal "third wave" of videotex today and tomorrow.

ROBERT A. SIMONS, ESQ.
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July 1, 1986

Assemblywoman Gwen Moore
Chairwoman
Assembly Committee on Utilities and Commerce
State Capitol
Sacramento, CA 95814

Re: The Future of Electronic Commerce in California

Dear Chairwoman Moore:

Although I was disappointed in not being able to provide testimony at the June 25th information hearing on referenced subject, Mr. Robert Jacobson suggested that I provide my testimony in writing nonetheless, which would still be acceptable. As it turns out, much of what I wished to convey was actually covered by the several witnesses who provided testimony at the hearing and, accordingly, my comments herein will be quite brief. Indeed, I will attempt to limit my comments to points in which I concur with testimony already provided and supplemental data which may be beneficial to the Committee.

By way of background, I am a licensed attorney practising in the Palo Alto area. I have twelve years of experience in the computer and information industries and advise clients on matters of computer and information law (e.g. electronic commerce). Additionally, I presently serve as Chair of the Corporte Counsel Section of the Santa Clara County Bar Association.

As to the testimony provided at the hearing on June 25th, I found same to be generally quite accurate. Specifically, I concur with the following points that were made:

1. That the primary regular user of electronic commerce is business and not the mass consumer.

2. That the mass consumer is only an occasional user of electronic commerce. Although you appeared to be disappointed by the lack of electronic services currently and prospectively used by the mass consumer (e.g. the Institute For the Future predictions), it is very important to recall Dr. Strong's comments, namely, that the mass consumer (i.e. public) obtains the benefits of electronic commerce via the public libraries. I can attest that this is indeed the case throughout the U.S. (and elsewhere) and I believe that it will continue to be the case in the forseeable future.

3. Occasional users of electronic commerce do not require the benefits of such services on a regular basis. I concur that the primary benefits of such services are speed, efficiency and value-added of the information disseminators (i.e., system operators). Consumers can, for example, obtain most of their information needs in several alternative ways and if reserach is required, they use the public (or academic) library as a resource. The library utilizes "online" services to meet the needs of that consumer

patron. Thus, the consumer is an indirect beneficiary of electronic commerce and has equal access thereto, but without the necessity to invest in computer equipment and software that isn't cost effective for occasional online use. Therefore, in actuality, the consumer has a less costly alternative than does business because of the lack of overhead required to derive the benefits of electronic commerce.

4. I concur that the arena of "home-oriented" services is best left to the private sector. Through private sector investment, I am convinced that services of value to the mass consumer may eventually be identified. As there are currently sufficient laws in California regarding false advertising, fraud and other consumer protections, the State should maintain a "hands off" policy until such services proliferate and until consumer problems, if any, are identified. It is my view that the likelihood of consumer complaints will be very low, particularly since these are not essential services. Thus, it's not a question of whether only those who can afford services will benefit; rather, it's a question of who needs such services. I submit that business and academia will continue to be the primary users of electronic commerce into the next century and that the mass consumer will continue to derive benefits through information intermediaries, such as public libraries, for a long time to come.

5. I believe that the important issues are those that were commented on in testimony given on June 25. These include:

- Privacy of information and protection of identities of those who utilize electronic commerce. Note that there are bills pending in the U.S. Congress to extend certain Constitutional protections to electronic commerce and users thereof.
- Don't regulate where it isn't necessary. Great care should be taken so as not to stifle private sector investment and creativity in utilizing new technologies to develop new services and products.
- Telecommunicating is providing a splended environment for employers and employees alike and we have sufficient labor laws on the books to handle the rare abuse. Mr. MacKenzie was apparently able to advocate his clients' positions without requirement for new legislation.
- Issues of taxation and independent contractor status can, depending on policy decisions, either provide support or cripple the industry and the benefits to be derived by all of us. I will touch upon these again below.
- The apparent lack of consumer complaints is evidence that industry is doing a good job. The addition of legislation that isn't necessary will be burdensome and costly, benefitting either no one or only a few. Why bother?

I wish to supplement the testimony already offered by commenting on three (3) specific areas in which policy decisions can either greatly enhance the environment for continued growth of new investment and benefits or destroy the same environment.

1. Independent Contractor

As the State evaluates the current definition of independent contractor status,, great care should be taken so as not to inhibit the entrepreneurial spirit of those specialized technically-talented persons who desire to operate their own businesses. I am familiar with quite a substantial number of these individuals and firms and it is my firm conviction that they do not want to be deemed as employees of the firms with whom they deal. They prefer to be their own bosses, working for several firms on special projects and directing their own work efforts. They do not want to undertake the obligations in the Labor Code as are applicable to

employees. Although they often must use the equipment and tools of the firm for whom they are working and must work on the firm's site, these are often for security reasons. The concept of independent contractor is no longer the narrow focus of a carpenter or repairman. The State should promote this small cottage industry by clarifying independent contractor status and encouraging such activity. Independent contractors neither need nor desire to receive the benefits usually afforded employees. The State should recognize the contribution these contractors provide and encourage the proliferation of these small businesses.

2. Data Generation

The State of California is a recipient of great quantities of data concerning business, consumer trends and other types of information. The best way to attain public access is to create machine-readable databases (i.e., tapes) and permit system operators to add value and sell information-related services and products derived therefrom. A "clearinghouse" could be set up to coordinate receipt of data from all State agencies and dissemination of such data to the private sector.

My recommendation is a model of the federal policy that is implemented through the National Technical Information Service (NTIS). NTIS is self-supporting and receives revenues through tape duplication fees received from the private sector. NTIS does not compete with the private sector. This is an excellent model of how government and the private sector can cooperate for the greater good. If the Committee examines the price of online services regarding privately developed data versus government developed data, it will find that the latter is far and away the most inexpensive data available via online services. Again, the primary users of these data are businesses and academia, but the public still benefits from access through libraries.

I recommend that serious policy consideration be given to creation of a State function similar to that of NTIS. I also recommend that OMB Circulars A-76 and A-130 be studied, so as to become familiar with how the federal government has created incentives to the private sector by not competing with the private sector with taxpayer dollars.

3. Taxation

The State should carefully examine its sales and use tax policies affecting information services. The State Board of Equalization is currently re-writing Regulation 1502 and the results of such action could significantly impact electronic commerce in California for decades.

At the present time, Reg. 1502 purports to tax royalties on software and data when same are sent into California via magnetic tape. I submit that this is an unfair tax in several respects and has already caused great damage to California's economic climate.

a) There is no State policy that directs taxation as to services per se, yet a tax on royalties does just that. The tax is not fixed or even capable of being known because royalties are dependent upon sales.

b) Jobs have been lost in California by firms that have eliminated using master tapes shipped into California. Thus, the de facto policy appears to favor elimination of jobs of Californians, since overburdened companies move out of state or are formed elsewhere initially.

c) If the State is going to apply sales/use taxes to services, do it for all services, be they legal, accountant, medical or whatever.

(d) Special exceptions are applicable to the entertainment industry, so one can only conclude that the high-tech services industry is not as favorable. Isn't this preposterous?

e) No new major online system operators have been created in California since Reg. 1502 was enacted. California is losing this type of business to other states and I believe that this is directly contributable to Reg. 1502.

Clearly, the creation of new businesses and jobs within California must be a policy priority to be established now if we are to prevent this innovative new industry from vacating California or forming elsewhere, as has already been the case for several years. Regulation 1502 must be re-written so as to remove the unfair taxation on services and the intangible intellectual property relevant thereto. Taxation on tangible products derived therefrom is both appropriate and consistent with current State policy. To the extent that the California Leglislature permits the SBOE to create unfair and uneconomic de facto policies, the public will surely be the loser.

In conclusion, I appreciate this opportunity to provide my comments on the future of electronic commerce in California. I see a tremendous future ahead that will bring vast benefits to all of the State's citizens. The time is now to commence cooperation with the private sector as noted above in order to create and promote an environment that will produce such benefits and to eliminate barriers to innovation and investment in our future.

I stand ready to assist the Committee in preparing for the future in any way possible.

Thank you.

Sincerely yours,

Robert A. Simons, Esq.

cc: Committee Members and Staff

RAS/ecm

TRINTEX

123 MAIN STREET
WHITE PLAINS, NY 10601
(914) 993-2400

TRINTEX

OFFICE OF THE VICE PRESIDENT

June 12, 1986

Chairwoman Gwen Moore
Assembly Committee on Utilities
and Commerce
California Legislature
State Capitol
Sacramento, California 95814

Dear Ms. Moore:

I thank you for asking us to consider testifying on "The Future of Electronic Commerce in California" at the June 25, 1986 informational hearing of the Assembly Committee on Utilities and Commerce and your interest in TRINTEX.

Our company is still in the development stage, and I regret that the demands of our business here in White Plains precludes us from having a representative come to California to testify. When our service is closer to completion we may be better able to respond to the issues your Committee intends to discuss.

In the interim, we are enclosing a copy of our current background brief. It is the only piece of public information we have available.

Thank you for your interest. I look forward to meeting you in the future.

Sincerely,

George M. Perry
Vice President & General Counsel

/bp

123 MAIN STREET
WHITE PLAINS, NY 10601
(914) 993-2400

TRINTEX BACKGROUND

TRINTEX was formed in February 1984 as a partnership among CBS Inc., IBM Corporation, and Sears, Roebuck and Co.

The company's mission is to create a videotex network that will be nationwide in scope and comprehensive in its offering of two-way informational and transactional services.

A Partners Committee, comprised of key representatives from CBS, IBM and Sears, is responsible for broad policy decisions affecting the company. Theodore C. Papes, Jr., a 32-year IBM veteran, is president and chief executive officer of TRINTEX.

The following officers report to Mr. Papes: Ross S. Glatzer, vice president, marketing; James M. Hewitt, vice president, systems development; Hyde C. Perce, vice president, finance and administration; George M. Perry, vice president and general counsel; John M. Pugliese, vice president, business services; and Harry E. Smith, vice president, product and commercial development.

Company headquarters are at 123 Main Street, White Plains, NY.

TRINTEX believes that videotex has the potential for becoming a major new medium for the creation and delivery of a wide variety of informational and transactional services to a large audience. Ultimately, videotex is expected to benefit subscribers, advertisers, commercial sponsors, and transaction providers.

The TRINTEX service will be interactive, enabling consumers with home and personal computers to perform two-way transactions such as shopping and banking, access information (such as local and national news, financial data, and educational material), and send messages.

TRINTEX was established with two equally important goals. One is to enhance the changing lifestyle of today's American family by providing a value-added, affordable service that is comprehensive, responsive, reliable, and can save family members time and money. The other is to improve marketing and distribution efficiency among commercial sponsors by personalizing messages, products, and other offerings to a large, diverse audience.

The TRINTEX partnership will combine the special expertise of each of its three partners to fully realize the potential of videotex. CBS offers strengths both in publishing and as a developer and marketer of commercially sponsored information and entertainment programs. IBM is a leading manufacturer of computer hardware and software, with extensive experience in the development of advanced systems and networks. Sears provides unparalleled consumer marketing and merchandising skills, as evident in its expansive retailing and financial services customer bases.

The founding of TRINTEX followed a joint CBS/AT&T videotex field trial in 1982-83. The results of that test, conducted in Ridgewood, NJ, demonstrated considerable interest and enthusiasm for videotex among consumer users, and by advertisers, retailers, publishers, and other participants who provided services on the system.

# # #

FANTASY PLAZA

FANTASY PLAZA

June 27, 1986

Robert Jacobson
AUCC
State Capitol
Sacramento, CA 95814

Dear Mr. Jacobson,

Thank you for sending me a copy of The Future of Electronic Commerce in California. I see no problem with you incorporating a session in our plaza in your report.

I do have a specific concern I'd like you to address. If you have any comments on this issue, I'd appreciate a response. Since credit card is the easiest method of payment, we accept both VISA and MASTERCARD. With the large number of teenage hackers owning personal computers, we find ourselves faced with an incredible amount of credit card fraud. What concerns us the most is the lack of cooperation by the banks. They will only verify the credit card number, and in some isolated cases, the name and address of the cardholder. Kids pass around invalid account numbers and post many of them on our system. Angry cardholders report us to the credit card companies as a fradulent merchant. With this happening more frequently, we are worried about our reputation. We have found that the bank will verify many of these numbers only to have the sales draft bounced back later as invalid. With the amount of computers being installed in banks these days, we are surprised they cantauthorize mail-order purchases more accurately. With our business growing and the amount of fraud increasing, we are very interested in persuing a better form of credit card verification without making it more difficult for customers to make a purchase.

I did not read your document all the way through, but if this issue is not incorporated, I hope you will address it. If you have any suggestions on how we can protect ourselves from the hackers, please let me know!

Thank you for your interest in our service and we hope to keep in touch as you progress with your hearing.

Just as a final note, a solution might be a way for us to capture the phone number of each caller, so we could turn them in to the proper authorities if necessary. We currently post threatning messages, but this is all bluff to try and scare away these dangerous people.

Sincerely, Gregg E. Collins

post office box 6055 • burbank, california 91510

DEPARTMENT OF CONSUMER AFFAIRS

Informational Hearing

THE FUTURE OF ELECTRONIC COMMERCE IN CALIFORNIA

Assembly Committee on Utilities and Commerce
State Capitol, Sacramento, CA
June 25, 1986

Testimony by

Thomas M. Cecil, Deputy Director
Department of Consumer Affairs

Assemblywoman Moore and Committee members, it is a pleasure to be here today. My name is Thomas M. Cecil, I am Deputy Director of the Department of Consumer Affairs. The Department appreciates the opportunity to comment upon the growing number of electronic commercial services in California. In addition, we would like to comment on some proposed legislation.

Identifying "consumer" electronic commercial services, as included under the provision of the Electronic Commerce Act of 1984, is difficult. The vast majority of electronic commercial services appear to be online systems which conduct the purchase of services. They are available primarily to businesses and only secondarily to consumers. Most online databases appear to be interstate services available nationally.

The following statistics show the number of online databases, as listed in the 1980 and 1986 Directory of Online Databases*.

Directory Issue	Number of Databases	Number of Database Producers	Number of Online Services	Number of Gateways
1980/81	600	340	93	N/A
1986	2901	1379	454	35

The figures show that as the number of online services has increased, there has been a trend in the growth of "gateway" computer services. A "gateway" is a computer service that acts as an intermediary between a consumer and the databases on the computers of one or more organizations that the consumer wants access to.

There are also some fifty kiosk-type videotex systems operating primarily in the United States and Canada. An example of a videotex service available to the public is located in the restored Capitol basement. Provided by El Dorado Teleguide, this videotex service provides "free" information about the weather, shopping, special events and other categories of information. It is partially supported by the advertising incorporated into the informational displays.

This particular online service, however, does not fall under the Electronic Commerce Act of 1984, since there has been no contract between the provider of the service and the consumer.

* The Directory of Online Databases, is jointly produced by Cuadra Associates and Elsevier Science Publishing Company.

The Electronic Commerce Act of 1984, (ECA) which went into effect July 1, 1985, includes the requirement that the provider of the electronic commercial service give the consumer the name and address of the provider and the procedures to follow to resolve a complaint. The provider must include the name and address of the Department of Consumer Affairs.

The Department of Consumer Affairs has received only one complaint about a provider of electronic commercial services during the FY 85-86 to date. The Department conducted a survey earlier this year of all known electronic commercial service providers to determine the level of compliance and awareness of the Electronic Commerce Act. After much research the Department found four such providers. Two of the four providers contacted were providing full ECA disclosure. The other two firms were apparently unaware of the requirements. One of these has recently stated they doubt their service is within the definition of the Electronic Commerce Act; the other has gone out of business. Since the survey, the Department has recently written two additional providers. We would be happy to forward our findings to you.

The Department of Consumer Affairs also contacted six consumer complaint handlers* to determine the number and nature of any consumer complaints they might receive on providers of electronic commercial services. This informal telephone survey, conducted in February 1986, revealed only one complaint filed with an office of the Better Business Bureau in San Francisco. The complaint handling agencies contacted are all located in urban areas and cover the majority of California consumers.

The Department of Consumer Affairs has concluded that consumers have few complaints which are not being resolved by the providers of Electronic Commercial Service. However, the largest providers of electronic commercial services have yet to show evidence of compliance with the Electronic Commerce Act. The Department would expect some increase in the number of consumer complaints received if there were full consumer disclosure by all electronic commercial service providers.

The Department notes existing proposed legislation - AB 3390 (Moore) - which would require annual consumer disclosure notices to be sent to consumers of electronic commercial services by the service provider. Our findings show a lack of consumer complaints in this field. Our experience is that it is difficult to determine which videotex and online computer systems fall within the definition of "electronic commercial service provider."

* For a complete listing, see page 2 of the attachment.

We recommend the following amendments to AB 3390 which we feel would strengthen the consumer protection aspects of the Electronic Commerce Act:

First, the Electronic Commerce Act should define "an electronic shopping system to conduct the purchase of services." We would be happy to work with the author to further define those "services" which are meant to be included or excluded. For example, does the purchase of services include reference databases and source databases? Does it include software? These terms need to be included or excluded from the definition of electronic commercial service so that full compliance with the Electronic Commerce Act can be determined.

Second, most databases or online computer services are designed for businesses and not individual consumers with home computers and modems; yet, some computer services appear to be designed for businesses and individual consumers. It is necessary to distinguish by definition which types of electronic commercial services are covered by current law. Contracts between businesses could be excluded from the Electronic Commerce Act since the Department of Consumer Affairs does not become involved in business-to-business disputes.

Third, the Electronic Commerce Act should be updated to describe "gateway" computer services and clarify their responsibilities to consumers under the Act. We understand that some gateways are essentially transparent to consumers who may not know they have been switched to another computer service. Questions about gateway computer systems include: Are they the provider of the electronic commercial service? Are they covered by the requirements of the Act? While the value of a "middleman" role is not disputed, the legal obligations upon such firms require clarification.

I appreciate the opportunity to raise some of the issues relating to consumers and electronic commercial services. I can assure you of our willingness to cooperate with the committee in clarifying existing law to protect the interests of consumers, while allowing for the growth of videotex, online databases and similar new electronic commercial services in California.

If you have any specific questions I would be happy to respond.

DEPARTMENT OF CONSUMER AFFAIRS

SURVEY OF ELECTRONIC COMMERCIAL SERVICES

COMPLIANCE WITH THE ELECTRONIC COMMERCE ACT OF 1984 (ECA)

COMPANY NAME/ADDRESS	NAME OF SERVICE(S) PROVIDED	CALIFORNIA SUBSCRIBERS (EST.)	ECA DISCLOSURE REQUIREMENTS	COMPLAINTS RECEIVED BY DCA, BBB AND COUNTY OFFICES (2/86)	COMMENTS
VIEW DATA CORP. OF AMERICA 1111 LINCOLN RD 7TH FLOOR MIAMI BEACH, FLORIDA 33039	VIEWTRON	1,400	-TOLL FREE NUMBER. -TERMS OF SERVICE DISCLOSURE. -NO MENTION OF DCA BUT WERE PREPARING A DISCLOSURE.	NONE	OUT OF BUSINESS SPRING 1986.
TIMES MIRROR VIDEOTEX 3100 SOUTH HARBOR BLVD SANTA ANA, CALIFORNIA 92704	GATEWAY VIDEOTEX	3,000	-FULL ECA DISCLOSURE.	NONE	OUT OF BUSINESS SPRING 1986.
MATCHMAKER ENTERPRISES P.O. BOX 6055 BURBANK, CALIFORNIA 91510	-FANTASY PLAZA (SHOPPING) -PLAZA PARTY (ELECTRONIC MAIL) -DIAL-YOUR-MATCH (DATING SERVICE)	-200 PHONE CALLS A DAY -200 - SUBSCRIBERS -200 - SUBSCRIBERS	-FULL ECA DISCLOSURE.	NONE	-PART-TIME BUSINESS. -CUSTOMER SERVICE NOT ALWAYS AVAILABLE - BUT MESSAGE CAN BE LEFT.

COMPANY NAME/ADDRESS	NAME OF SERVICE(S) PROVIDED	CALIFORNIA SUBSCRIBERS (EST.)	ECA DISCLOSURE REQUIREMENTS	COMPLAINTS RECEIVED BY DCA, BBB AND COUNTY OFFICES (2/86)	COMMENTS
COMPUSERVE 5000 ARLINGTON CENTRE COLUMBUS, OHIO 43220	-ELECTRONIC MALL VARIOUS OTHER GATEWAY SERVICES	UNKNOWN	UNKNOWN	ONE COMPLAINT (TO DCA)	-ATTORNEY REPRESENTING INC. SAYS THEY DOUBT COMPUSERVE IS AN "ELECTRONIC COMMERCIAL SERVICE" UNDER THE ECA OF 1984 - THEY ARE REVIEWING THE ISSUE.
COMPUCARD 707 SUMMER ST. STAMFORD, CONNECTICUT 06904	COMP-U-STORE ONLINE	300,000	UNKNOWN	ONE COMPLAINT (BBB-SAN FRANCISCO)	-NO RESPONSE TO DEPARTMENT LETTER OF 4/86. -NEW LETTER SENT 6/19/86.
THE SOURCE TELECOMPUTING CORPORATION 1616 ANDERSON ROAD MCLEAN, VIRGINIA 22102	CALL - APPLE VARIOUS OTHER GATEWAY SERVICES	UNKNOWN	UNKNOWN	NONE	-DCA LETTER SENT OUT 6/19/86.

1 In February 1986, DCA conducted an informal telephone survey of some County Consumer Protection Agencies and Better Business Bureaus. Specifically these agencies were:

San Francisco County Consumer Fraud Unit
Los Angeles County Department of Consumer Affairs
State Clara Better Business Bureau
Santa Clara County Consumer Protection Agency
CalPIRG (Statewide)
San Francisco Better Business Bureau

Prepared by the Department of Consumer Affairs, Legislative Unit. June, 1986.

FLEMING LTD.

Written Testimony Submitted to the

Assembly Committee on Utilities and Commerce
California Legislature
June 25, 1986
Hearings on The Future of Electronic Commerce in California

Prepared by:

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Fleming, LTD
1107 Halifax Avenue
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INTRODUCTION

Thank you for the opportunity to offer information and to answers questions the committee might have about telecommuting.

By way of introduction, I am an Ambassador for the Association of Electronic Cottagers, the international organization for computer entrepreneurs and telecommuters, and I serve as contributing editor of the association's newsletter.

Also, I am a proprietor of Fleming, LTD, a firm providing management consulting and educational services in the field of telecommuting.

DEFINITION: A definition of telecommuting is helpful. *Tele* refers to telecommunications technology, and *Commuting* refers to the daily vehicle travel to the workplace. Telecommuting means the substitution of telecommunications technology for the daily commute to work. In other words, it means transporting information -- rather than people--to and from the central office.

TELECOMMUTING WORKSITES: Telecommuting is characterized by the use of multiple worksites connected by telecommunications technology and telecommuting organizational structure. Worksites include the central office, field office, satellite office, neighborhood office center and home office.

TELECOMMUTING WORK: Any information-processing work can be telecommuted (the banking and insurance industries are among the pioneers in establishing telecommuting programs).

TELECOMMUTING OPTIONS: Telecommuting is flexible and can be used part-time or full-time, for short or long-term projects, and it includes a combination of worksite options.

ADVANTAGES TO PRIVATE & GOVERNMENT SECTORS: Telecommuting program research indicates the following *advantages for employers*:
–Lower office space costs.
–More recruitment options.
–Reduced employee turnover.
–Less absenteeism.
–Better management via improved communications
–Increased productivity by 20-40 percent.
–Therefore, higher profits to the private sector.
–Therefore, better government services for less cost to the public.

The following *advantages for employees* have been identified:
–Reduced commuting time/ more home-life time.
–Less commute-related stress.
–Savings on transportation (gasoline, parking, transit fares, auto costs).
–Savings on food and clothing.
–More child care options.
–Fewer interruptions during work.
–Sense of control over worklife.
–Therefore, higher morale & increased productivity.

PART ONE: PROSPECT FOR TELECOMMUTING IN CALIFORNIA

PROSPECTS for telecommuting in California commerce are that it will continue to grow at a slow rate. Of the 3 million telecommuters in the U.S., it is estimated that 20 percent are in California. Several large private corporations such as Pacific Bell and Rising Star Industries have established telecommuting programs. According to Gil Gordon of Gil Gordon Associates, it is entirely reasonable for most firms to have up to 5 percent of their office workforce working away from the central office; in information-intensive businesses (such as banking or insurance) the number might be closer to 10 percent.

In the government sector the Southern California Association of Governments has begun a telecommuting pilot. In its *Year 2000 Study*, The City of Los Angeles looks for telecommuting to reduce commuter traffic by 20 percent. The California Department of General Services has completed a plan for a telecommuting project involving 200 volunteer employees. The plan is awaiting funding or another innovative option to go ahead.

GROWTH AREAS for telecommuting are in both the private and government sectors. (1) We can expect to see more home-based employees and more home-based independent contractors. (2)We can also expect to see the establishment and spread of neighborhood office centers (with child care facilities) and satellite offices to serve telecommuters and independent contractors. (3) Populations most likely to increase participation in telecommuting are management and professional level employees, clerical workers, members of two-earner families, single heads of household, the physically disabled, persons with care-taking responsibilities and older workers. (4) Telecommuting can also cause growth of commerce by increasing demand for the following: affordable telecommunications services and products, personal computers for business and work-related use, ready and affordable access to database services, neighborhood office support centers, employee leasing of telecommuters, temporary agency placement of telecommuters, and use of telecommuters internationally.

IMMEDIATE (5-YEAR) GROWTH: In the short term telecommuting will grow slowly accumulating momentum as it becomes more commonly accepted and better understood.

LONG-TERM (5-10 YEAR) GROWTH: Telecommuting is projected to be used by 25 percent of the workforce by the year 2000.

SLOWING the growth of telecommuting will be:
- Lack of ready access to information about telecommuting.
- Lack of official recognition of telecommuting as a viable and accepted work option.
- The occurence of abuse of telecommuting by employers through "sweatshop" working conditions or by employees through lack of honesty.
- Excessive cost of telecommunicatons services, especially the cost of telephone service.

HASTENING the growth of telecommuting will be:
–Formal recognition and acceptance of telecommuting as a viable and accepted work option.
–Ready access to information about telecommuting.
–Affordable cost of telecommunications services, especially telephone services.

PART TWO: POLICIES PROMOTING A VIABLE ENVIRONMENT FOR TELECOMMUTING IN CALIFORNIA

OFFICIAL ENDORSEMENT AND USE of telecommuting as an option for addressing related government issues such as:
–cost of providing government services
–child care
–unemployment
–underemployment
–employment opportunities for the disabled
–transportation
–air quality
–energy conservation

PASSAGE OF ASSEMBLY CONSTITUTIONAL AMENDMENT 9 (authored by Assemblywoman Moore) to extend the right of privacy to electronic communications is fundamental to insuring a reliable foundation for telecommuting which is based on the electronic transporting of information.

PROTECTION and DEFINITION OF INDEPENDENT CONTRACTOR STATUS is essential for safe-guarding both telecommuting and the entrepreneurial strength of the economy. The majority of new jobs are generated by small businesses, many of which begin as home-based operations.

PROTECTION OF EMPLOYEE STATUS AND BENEFITS for telecommuters is necessary to prevent abuses which could lead to unnecessary government prohibitions against telecommuting. Please see Appendix for specific policy recommendations.

ENCOURAGEMENT AND FUNDING OF PILOT TELECOMMUTING PROJECTS to serve as prototypes, explore potentials and overcome institutional barriers.

ADOPTION OF FULL-SCALE TELECOMMUTING PROGRAMS.

ESTABLISHMENT OF A STATE-WIDE PUBLIC/PRIVATE CLEARINGHOUSE TO ADDRESS AND RESOLVE TELECOMMUTING ISSUES such as workman's compensation, child care, underemployment, employment for the disabled, equity of access to telecommunications services, and independent contractor status.

PART THREE: ISSUES FOR IMMEDIATE ATTENTION OF THE LEGISLATURE

EQUITY OF ACCESS to affordable telecommunciations services, especially telephone services, is vital to the growth of telecommuting for employees, independent contractors and the businesses and governments for which they supply services.

ENCOURAGEMENT AND FUNDING of telecommuting projects is needed.

PASSAGE OF ASSEMBLY CONSTITUTIONAL AMENDMENT NO. 9.

FORMAL APPLICATION of telecommuting as an option for mitigating problems such as air pollution, transportation/commuter traffic costs, unnecessary fuel consumption, high cost of providing government services, land use concerns, unemployment, underemployment and employment for the disabled.

ISSUES FOR LONG-TERM ATTENTION OF THE LEGISLATURE

CHANGES IN LABOR-MANAGEMENT RELATIONS AND LABOR LAW to protect and define the status of independent contractors, employers and employees should be addressed in the long-term to monitor and insure equity and fairness.

CONCLUSION

POLICIES OF THE LEGISLATURE will have a far-reaching effect on the growth and acceptance of telecommuting. The prudent and well-planned use of telecommuting has the potential to provide many social, economic and environmental benefits. California is the established trend-setter for the nation. It is fitting that California take the leadership in establishing telecommuting as a work option and reap its benefits.

APPENDIX

Testimony by Dr. Kathleen Christensen before the Employment and Housing Subcommittee, Committee on Government Operations, U.S. House of Representatives, February 26, 1986.

The following recommendations were made in regard to home-based clerical workers most of whom were women. The recommendations can be used as a guide for the protection of home-based telecommuters in general, can apply to California as well as the federal government and are therefore included here.

"I do recommend that protective and supportive legislation be passed to ensure that mothers of young children who are clerial "independent contractors" who are actually employees can become strong forces in the labor market. This will provide economic security for our most valuable resource: the family.

"To provide this economic security, legislation should safeguard the following:

1. Workers expected to perform as employees should be defined as employees with full benefits.
   * Tests of employee status must be explicit and consistent across the regulations of the Internal Revenue Service, the Fair Labor Standards Law, and state laws.
   * Employers must be held to these tests and not be allowed to alter employee status when the home becomes the work site.
2. Benefits must be provided according to wage earnings.
   * In order to guarantee that women and their families are covered in illness and old age, health and pension benefits should be provided and pro-rated to earnings.
   * So as to provide two-parent households with optimal coverage, a cafeteria approach to benefits is recommended. This would allow non-traditional benefits, including child care, to be available. As noted before, 36% of clerical homeworkers depend on some form of supplemental child care. Mothers take their work and their children too seriously to try to do both at the same time.
   * In addition, the provision of benefits make low hourly rates ($7.13 per hour) more attractive. Let's ensure that the working poor don't become the non-working poor.

3. Congress should support the creation of a national information center, as well as local support and referral systems, for workers who work at home. The ignorance and isolation bred by the home as workplace must be counteracted if homeworkers are to earn prevailing market rates.
4. Alternative forms of child care must be made available. People who work at home should have access to other forms of child care, so they can give full attention bo both work and family, but not at the same time.
5. Corporate home employment practices must be held to the following principals.
   * Equal pay for equal work, regardless of place. People who work at home should receive what their counterparts get in the office.
   * Equal status. Workers at home should be afforded the same or comparable benefits as those in an office would receive, including the benefit of career mobility.
   * Home employment is only one type of work alternative. People who work at home should have the option of other flexible work alternatives, including job sharing, part-time work with benefits, and flexitime."

ELECTRONIC SERVICES UNLIMITED

CALIFORNIA SURVEY HIGHLIGHTS
Items for Overhead Projection "slides"

Slide 1.

CALIFORNIA WORK-AT-HOME SURVEY

Conducted February-March 1986
by
Electronic Services Unlimited

Slide 2.

A Survey of 400 Work-At-Home Households in California Where One or More Individuals Performs Income-Producing Work-at-Home Home.

THREE MAJOR CATEGORIES OF HOME WORKERS:

1. Home Business,
2. Work After Hours at Home,
3. Substitute Time at Home for Regular Work Hours Elsewhere.

Slide 3.

METHODOLOGY

A total of 9,614 phone calls were placed during February-March 1986 to California households selected by Random Digit Dialing. The following incidence of calls were completed:

* Completed Interviews with Home Workers	400	4.16%
* Terminates (Non-Home Workers)	2,942	30.60%
* Breakoffs (Respondent did not allow the interview to be completed)	28	.29%
* Callbacks/Unable to Reach Home Worker	41	.43%
* Refused the Call	1,506	15.66%
* No Answer/Busy/Wrong Number/ Disconnect/Business Phone, etc.	4,697	48.86%
	9,614	100.00%

About 30 minutes were needed to complete the in-depth survey, totalling approximately 150 questions. The questionnaire was the same one used in the National Work-at-Home Survey conducted in January by Electronic Services Unlimited. Respondents were generally very receptive to the survey, as indicated by the low "breakoff" rate.

RESULTS OF THESE 400 DETAILED INTERVIEWS ARE PROJECTABLE TO THE TOTAL POPULATION OF CALIFORNIA WITH 95% CONFIDENCE, ± 5%.

Slide 4.

PRINCIPAL FINDINGS

* CALIFORNIA HOUSEHOLD [HH] TOTAL — 9.8 Million
* CALIFORNIA WORK-AT-HOME HOUSEHOLD TOTAL — 1.4 Million [13.75%]
* CALIFORNIA WORK-AT-HOME POPULATION TOTAL — 1.7 Million

Note: Population is greater than households because some households have more than one member working at home.

Slide 5.

PRINCIPAL FINDINGS

[Compare California HH to U.S. HH using charts without using exact numbers.]

* California has one-out-of-nine (11.1%) of all U.S. households, but has one-out-of-eight (12.8%) of all U.S. work-at-home households. It also has more than one-out-of-eight of all U.S. work-at-home individuals:

	Total HH	Work-at-Home HH	W-A-H Pop
U.S.	88 Mil	10-11 Million	13-14 Mil
CALIFORNIA	9.8 Mil	1.4 Mil	1.7 Mil
	CA = 11.1% of U.S.	CA = c. 13.3% of U.S.	CA = 12.6% of U.S.

Slide 6.

PRINCIPAL FINDINGS

* 12.4% of all U.S. HOME BUSINESSES are in California

* 14.3% of all U.S. HOME WORKERS EMPLOYED BY OUTSIDE ORGANIZATIONS live and work in California.

  - Companies and organizations in the State of California support a larger home workforce than any other state in the U.S.

Slide 7.

WHO WORKS AT HOME IN CALIFORNIA?

California's Work-at-Home Population is:

* YOUNG
  * 90.0% UNDER THE AGE OF 55
  * 43.0% UNDER THE AGE OF 35

* VERY EQUALLY DIVIDED AMONG THE SEXES

* PREDOMINANTLY MARRIED

* ABOVE THE U.S. HOUSEHOLD INCOME NORM
  * Nearly 25% Have Household Incomes Over $60,000
  * The Majority Live in Multi-Income Households
  * The Majority Perform Some or All of Their PRIMARY JOBS at Home.

Slide 8.

WHO WORKS AT HOME IN CALIFORNIA?

* THE VAST MAJORITY ARE KNOWLEDGE WORKERS

  On average, California has 9% fewer Manual Tradespeople and Farmers among its work-at-home population compared to the U.S.

* 7% MORE BUSINESS PROFESSIONALS than the U.S. Home Worker Ave.

* 1.7% MORE BUSINESS OWNERS & EXECUTIVES on Ave. than the U.S.

* NEARLY TWICE THE U.S. RATE OF DP PROFESSIONALS WORKING AT HOME

* 2.2% MORE ENGINEERS & SCIENTISTS on Average Working at Home than the U.S.

* NEARLY 5 Xs THE RATE OF HEALTHCARE WORKERS AT HOME as the U.S.

* 1.4% AVERAGE FEWER CLERICAL SUPPORT HOME WORKERS than the U.S.

* 5.2% AVERAGE FEWER TECHNICIANS-OPERATIVES WORKING AT HOME than elsewhere in the U.S.

Slide 9.

WHAT ARE THE TOP 5 ADVANTAGES OF WORKING AT HOME IN CALIFORNIA?

1. You Can Be Your Own Boss
2. Less Commuting Hassle
3. Increased Productivity
4. More Time for Yourself
5. Fewer Distractions

Slide 10.

WHAT ARE THE TOP 5 DISADVANTAGES OF WORKING AT HOME IN CALIFORNIA?

1. Work Too Much/Late Hours
2. Lack of Work Tools/Equipment
3. Harder to Manage Time
4. Lack of Interaction with Co-Workers
5. Less Time for Self

In general, about half as many home workers hold views about the disadvantages of home workstyles as about the advantages.

Slide 11.

THE AGE OF ELECTRONIC INFORMATION
&
CALIFORNIA WORK-AT-HOME

* 8% More California Home Worker Households Have PERSONAL COMPUTERS Than the U.S. HOME WORKER HOUSEHOLD Average --
  - 6% More on Average Have More Than 1 Computer
  - This is well over double the average home computer penetration rate for ALL U.S. households!

* 3.4% More California Home Workers Use PORTABLE COMPUTERS Than Their Counterparts in Other States.

* Nearly 60% Again As Many Home Workers in California on Ave Work at Home with ONLINE TERMINALS as Elsewhere in the U.S.

* Modem Usage Among Home Workers in the State Runs Almost 9% Ahead of U.S. Home Workers, on Average.

Slide 12.

THE AGE OF ELECTRONIC INFORMATION & CALIFORNIA WORK-AT-HOME

* "Has using a computer for business made you more or less inclined to use one for non-business purposes?"

* MORE INCLINED TO USE COMPUTER	63.6%
* LESS INCLINED TO USE COMPUTER	6.4%
* NEITHER MORE NOR LESS INCLINED	28.2%

* "Has your working at home with a computer influenced others in your household positively or negatively towards computers?"

* INFLUENCED OTHERS POSITIVELY	74.5%
* INFLUENCED OTHER NEGATIVELY	0.0%
* NEITHER POSITIVELY NOR NEGATIVELY	15.5%

[Balance comprised by single households & by respondents who "don't know".]

Slide 13.

THE AGE OF ELECTRONIC INFORMATION & CALIFORNIA WORK-AT-HOME

* In California, Double the U.S. Home Worker Average Use Computerized Home Electronic Banking Services.

* Double the U.S. Average Use Online Home Shopping Services.

* More the Double the U.S. Home Worker Household Average Expressed the Intention to Use Online Home Banking Services and Nearly Double the Rate Plan to Use Online Shopping Services in 1986.

Slide 14. THE AGE OF ELECTRONIC INFORMATION
&
CALIFORNIA WORK-AT-HOME

* Nearly 80% of California's Home Workers Use the Telephone in Their Work-at-Home

* Over 12% MORE California Work-at-Home Households on Average Use One or More Separate Telephone Lines for Their Home Work Activities Than Elsewhere in the U.S.

* Nearly 11% More Use Feature Phones, on Average.

* Nearly 20% More Use Answering Machines, on Average.

* Over 60% Again the Average U.S. Home Worker Rate Use Voice Mailboxes in Calfiornia for Their Work-at-Home.

Slide 15. CALIFORNIA HOME WORKER SATISFACTION

* California Home Workers Are Satisfied with Their Home Workstyles:

VERY SATISFIED	45.5%
SOMEWHAT SATISFIED	35.0%
NEITHER SATISFIED NOR DISATISFIED	13.3%
SOMEWHAT DISATISFIED	3.8%
VERY DISATISFIED	2.0%

Slide 16. CALIFORNIA HOME WORKER PREFERENCES

* California Home Workers Favor these "Ideal Working Arrangements":

WORK FULL-TIME AWAY FROM HOME	14.8%
WORK FULL-TIME AT HOME	24.3%
WORK PART-TIME AT HOME & PART-TIME AWAY FROM HOME	55.0%
DOES NOT MATTER	3.5%
DON'T KNOW	2.5%

Slide 17. CALIFORNIA HOME WORKER PREFERENCES

* California Home Workers Consider the Following Number of Days Working at Home to be Their Ideal:

-	ONE DAY/WEEK WORKING AT HOME	10.5% Consider Ideal
	TWO DAYS/WEEK AT HOME	26.4%
	THREE DAYS/WEEK AT HOME	38.6%
	FOUR DAYS/WEEK AT HOME	6.8%
	FIVE DAYS/WEEK AT HOME	5.9%

Slide 18.

CALIFORNIA HOME WORKER PREFERENCES

* "Do you think working at home is a good idea for others to try?"

YES	68.3%
NO	5.5%
DEPENDS ON SITUATION	24.0%

Slide 19.

THE MOST INTERESTING CALIFORNIA WORK-AT-HOME ANOMALLY

* Fewer California Employers Appear to Allow Their Employees to SUBSTITUTE TIME AT HOME OUTRIGHT For Time at Their Primary Workplace:

    * 30.5% of California Home Workers Say Their Employers Allow Them to Substitute Time at Home for Time in the Office -- compared to 33.4% of U.S. Home Workers.

* Fewer California "After Hours" Home Workers Than U.S. After Hours Workers Think Their Employers WOULD ALLOW Them to Substitute Time at Home for Time at Their Primary Workplace:

    * Only 21.2% of California Home Workers Think Their Employers Would Agree to Allow Them to Work at Home "Some Weekdays" -- compared to 26.0% of U.S. Home Workers Who Think This.

* Yet, the Actual Incidence of Home Workers in California Who Are Not Self-Employed Excedes the U.S. Average by 2.1%

* And Satisfaction with This Lifestyle Among Home Workers in the State Runs Slightly Ahead of the U.S. Overall.

ARE CALIFORNIA'S EMPLOYERS REALLY TAKING ADVANTAGE OF THE PRODUCTIVITY AND HUMAN RESOURCE BENEFITS OF THE WORK-AT-HOME TREND -- IN WHICH THEIR STATE LEADS THE REST OF THE COUNTRY?

RODERICK L. MacKENZIE, ESQ.
(REPRESENTING TELECOMMUTERS)

The Daily Recorder

Serving the Capitol and California since 1911

LaRouche says Prop. 64 critics will help him in '88 election
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cramento, Calif. 95814 | Wednesday, September 24, 1986 | Volume 75, Number 191 | Three Sections | 50 cents

Routine contract case draws national interest

By Sue Armstrong
Daily Recorder Staff Writer

Sacramento attorney Roderick MacKenzie did not expect a routine contract review request to blossom into an appearance before the U.S. Congress and California State Assembly, a spot on the CBS Evening News and articles in the New York Times and Wall Street Journal.

But that's what happened to MacKenzie, 40, a partner in the law firm MacKenzie and Brody, after he agreed to represent eight women who work as claims processors for California Western States Life Insurance Company.

The case to recover benefits for women hired as contract employees will probably not get on the Sacramento Superior Court calendar until sometime next year, but it is already drawing attention throughout the nation because it carries major ramifications for "telecommuters" who use personal computers to perform work at home.

LEGISLATORS AT THE state and national level are trying to anticipate problems in a rapidly growing field as businesses shift more and more work away from centralized offices into the homes of contract employees.

Last year the women asked MacKenzie to review contracts they signed in 1982 with Cal-Western. The program allowed them to work from their homes — jobs which held promises of more family time, flexible work schedules and savings in commuting and clothing expenses.

But the prize positions required the women to sign independent contractors' papers — a move MacKenzie contends is designed to shift the burden for health, retirement and vacation benefit payments from Cal-Western to the women.

The women ended up paying for those

continued on page 3

Local attorney in national spotlight

from page 1

benefits, or doing without them altogether.

MacKenzie says the women's benefits should be paid because they were really employees of the company, not independent contractors.

The California Labor Code states generally that employees are told how to accomplish a job while independent contractors provide a final result using their own methods.

MacKenzie says the women received constant instructions from the company, even down to colors of ink and labels they should use. He also says the women were required to notify Cal-Western any time they processed claims for another insurance company and could be fired if Cal-Western perceived any conflicts with their other jobs.

IN ADDITION, he notes the women never worked for other companies because their work loads were too heavy. At times the women worked 10 to 14 hour days just to complete the work they were contracted to do, he explained.

MacKenzie calls telecommuting the "wave of the future."

Laws concerning the new industry are just evolving and government committees and businesses are holding informational meetings to prepare for potential changes in the workplace. It's an arena that found MacKenzie in the right place at the right time.

In January The Sacramento Bee ran an article on the Cal-Western case and a state legislator saw it. The state was looking into the issue and the legislator wanted to create a network for exchange of information. He put the article on a national database network and other information systems picked it up.

Laws concerning telecommuting are just evolving. Government and businesses are preparing for potential changes in the workplace.

The Wall Street Journal used the case in a labor column on Feb. 11, 1986, and in Washington a telecommunications consultant, Gil Gordon, picked up the story. Gordon was slated to appear before the Employment and Housing subcommittee and he recommended that MacKenzie be added to the panel of speakers.

The subcommittee met in February. According to the Congressional Record, they addressed the issue "not with an eye toward any immediate action ... but to begin to look at a matter which has some importance now, and will be increasing in importance."

MACKENZIE SAID HE did not feel he was playing a great role in lawmaking but he was honored to be invited to speak. He said it was great to see his name in the Congressional Record before his 40th birthday.

The New York Times wrote about the case in May and in June MacKenzie appeared before the California Assembly Utilities and Commerce Committee to speak at an informational hearing on the future of electronic commerce in California.

In Augus, CBS anchorman Dan Rather ran a spot concerning changes in the Fair Labor Standards Act and they used the Cal-Western case to exemplify labor changes. MacKenzie said he had made it to the national news once before, when there was an accident and tremendous backup on the Yolo causeway, but he said his friends commented more on the Cal-Western sequence.

"They even flew in a cameraman," he said.

Inquiries on the case are still flowing into his office but MacKenzie said he has not lost his perspective.

The notoriety is important in one respect, MacKenzie said. "I feel I'm advocating for my clients. They are motherhood and apple pie — not freeloaders or bra burners."

Business Day MONDAY, MAY 26, 1986

The New York Times

Home-Based Work Stirs Suit

8 Claim Boss Misled Them

By ANDREW POLLACK

Special to The New York Times

SACRAMENTO, Calif. — When the California-Western States Life Insurance Company offered some of its claims processors the chance to work at home instead of in the office a few years ago, it seemed like an attractive opportunity.

Working at home promised to allow the processors, most of them women, to spend more time with their children, to have flexibility in their schedules and to avoid expenses for commuting, clothing and child care.

The company, too, stood to save money because the workers agreed to become independent contractors rather than employees, forfeiting the regular hourly wages and fringe benefits they had as employees.

Now, however, what once seemed ideal has soured, and eight of the processors, all of whom are women, are suing California-Western for fraud. They say they were forced to work as much as 15 hours a day to make their quotas and never got the flexibility and freedom they were promised. The suit, filed in California's Superior Court in Sacramento, charges that the independent contractor status was merely a "subterfuge" to avoid paying them benefits.

"It became where I was working from 5 in the morning to 9 at night," said one of the plaintiffs in the suit, Beverley O'Connell.

'How Did We Deceive Them?'

But California-Western says the suit is without merit. "They admit that going into the relationship, they knew they weren't going to get the benefits, so how did we deceive them?" said Dennis R. Murphy, an outside attorney representing Cal-Western, which is owned by the Houston-based American General Group.

The case, which is still in the pretrial phase, is starting to attract nationwide attention as an example of a controversy that, some experts say, is likely to arise in the future as home-based clerical work increases. One of the key issues, experts say, is whether home-clerical workers should be considered independent contractors.

"There appears to be an abuse of independent contracting," said Kathleen E. Christensen, director of the national program on home-based work at the City University of New York Graduate Center. Dr. Christensen, who directed a survey of 14,000 people, who either work at home or are considering it, was speaking in general, not about the Sacramento case specifically.

Donald Elisburg, a labor lawyer and former assistant secretary of labor for employment standards in Washington, agreed that many workers classified as contractors really work for one company and receive

The New York Times/Terrence McCarthy

The eight women who are suing the California-Western States Life Insurance Company for fraud. Clockwise from left foreground are Marilyn Harms, Jane Schmidt, Sherry Sphar, Beverley O'Connell, Lynda Smith, Gloria Steele, Pamela Edwards and Beverly Voss.

Home-Based Work Stirs Suit

Continued From First Business Page

the freedom of being independent.

The issue of home-clerical work, and the independent contractor status in particular, was also the focus of a hearing in February of the Employment and Housing Subcommittee of the House Government Operations Committee. The subcommittee is expected to issue a report next month that will make recommendations regarding the need to regulate such home-based clerical work.

The case is one of the first involving home-based clerical work, which, while still rare, is said to be growing as women seek to balance work with child-rearing. Also contributing to the growth is the spread of computer technology, which enables people to work from home on terminals attached to the company's computer by telephone lines. Such telecommuting, however, is only a small part of home-clerical work, which involves other tasks such as direct marketing or typing services, according to Dr. Christensen.

Exploitation Cited

Labor unions, pointing to cases like the one here, say that home workers often do piece work for low wages and are therefore exploited. The unions, which are also worried that widely dispersed home workers are harder to organize than those in a company, are seeking a ban on computerized home-clerical work. Such bans have been in effect on some types of home-industrial work that have existed for several decades under the Fair Labor Standards Act, which sought to prevent employers from circumventing minimum wage and child labor laws by employing home workers.

Workers themselves often favor such programs that enable them to work at home. In New England, for example, women who were knitting ski caps in their homes pushed the Labor Department to end a ban against home knitting as a business.

More recently, in Madison, Wis., a union agreed to go along with a home-work program at the University of Wisconsin Medical Center, in which the workers would be considered full employees with full benefits and union representation.

"There is without question the desire on the part of some of the employees to at least experience working at home," said Allen Highman, field representative for the Wisconsin State Employees Union, who took issue with calls for a ban on such work. "Just to blatantly say it's not going to exist is naïve," he said.

Issue Litigated for Decdes

The issue of whether a person is an employee or an independent contractor is one that has been litigated for decades. Some legal experts say the definition of employee varies from law to law, and is somewhat different under the tax code, for instance, than from what it is under the Fair Labor Standards Act.

In general, they say, the matter revolves around how much control the employer has over the work. This, in turn, revolves around such questions as whether the workers can work for other people as well as the main employer and how much of an investment and risk the worker takes.

Mr. Murphy, the attorney for Cal-Western, said the women were independent contractors because they were responsible only for the result: a certain number of correctly processed claims a week. When they did the work was their own decision.

Mr. Murphy said the arrangement was "good for the women and good for the company" and added that the women filing suit represent only a minority of the roughly 30 home-based processors the company used.

But Roderick L. Mackenzie, the attorney representing the women, said the company imposed so many stipulations on the women that they were in effect, employees. They had no time to work for anyone else, and were constantly being issued commands for changes in procedures and could only work when the company computer was in operation.

Regardless of who wins the lawsuit, the case of the women seems to show that home-based clerical work can be far from the ideal situation it has often been portrayed to be.

The women, most of whom had been working at the company for several years, were offered the chance to do work at home between late 1982 and mid-1984. They agreed to accept payment of 90 cents per claim and quotas of 250 to 350 claims a week. Processing claims involves checking to make sure the claim is correct and then coding it into the computer to authorize payment. Terminals, connected to the company's main computer, were installed by the company but were leased by the workers for $50 a month.

At first, the women said, the arrangement worked out fine. But then, things gradually went awry. The company's computer system became overloaded and communications lines broke down, so that it took longer to process claims. New procedures were instituted which also added to the processing time. In addition, they said, they were required to do work ancillary to claims processing while the company reduced its in-house clerical force.

The women said that the supposed benefits of being their own bosses and of having more time for their families proved illusory. "You had less freedom when you went home," said Lynda Smith. Sherry Sphar, another plaintiff, said her daughter would stand outside her workroom and ask, "Mommy, are you going to be done tonight before I go to bed?"

The women and the company agree, however, that their incomes from working at home, which ranged from $15,000 to more than $20,000, was generally greater than the $14,000 to $16,000 they earned in the office. However, the women noted, that was without benefits such as paid vacation, sick leave, health insurance and contribution to Social Security taxes by the company. In general, analysts say, such benefits can add 30 percent to a company's costs for workers.

The women said that when they complained about conditions, they

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WRITTEN STATEMENT SUBMITTED IN CONJUNCTION WITH TESTIMONY BEFORE THE EMPLOYMENT AND HOUSING SUBCOMMITTEE OF THE NINETY-NINTH CONGRESS OF THE UNITED STATES

STATEMENT OF PURPOSE

The purpose of this written statement and corresponding oral testimony given before this Subcommittee will deal specifically with the pending California lawsuit by eight women claim processors against a large Sacramento based life and health insurance company and more generally with the distinction between an "employee" and an "independent contractor" which is the crucial issue in the underlying lawsuit. The action was filed in the Superior Court of California in the County of Sacramento on January 17, 1986.

STATEMENT OF THE CASE

In 1982, the eight plaintiffs in the aforementioned lawsuit had worked for the insurance company (hereinafter the "Company") for various periods ranging from 3 years to 11 years as claim processors. Their principal duties were the processing of health insurance claims for the various group health insurance plans which the company had underwritten. In 1982, the women were persuaded to embark upon a new work program which the company was

initiating which entailed the processing of health insurance claims at home via the use of a computer terminal which was connected with the home office in Sacramento. The women were encouraged to continue their claim processing work in conjunction with this new program and were essentially "sold" on the purported benefits of working at home, i.e., not having to dress for work, having more time with their families, being in control of their hours of work, not having to negotiate traffic and auto expenses associated with commuting to the office each day, etc, etc. In order to go on this program, it was necessary for the women to tender a letter of resignation and sign an independent contractor agreement prepared by the company which detailed the terms and conditions of the work they were to perform. The women were also required to sign a Termination Agreement which listed the numerous employee and fringe benefits which the workers would be giving up (an exemplar of the contracts and a copy of the Termination Agreement are a part of the Complaint which is attached hereto as Exhibit "A").

Under the Independent Contractor Agreement the -claim processors were required to meet certain minimum productivity requirements. These requirements generally required the contractor to process a minimum of 350 claim transactions per week. In the event this minimum production requirement was not met, the Company had the right to immediately terminate the Agreement. The claim processors would pick up their required number of claim files from the home office on a designated day of the week and then return the files the following week and pick up

a new batch of claim files. The claims were processed through a computer terminal which the Company installed and leased to the claim processor at the nominal charge of $50.00 per month. Initially, the production requirements were feasible; however, the company made numerous changes and modifications to both the computer system and to the procedure which the claim processor had to follow in the processing of claims. The consequence was that the claim processor had to work longer and longer days in order to meet their minimum production requirement. Depending on holidays, computer down time and other factors, the necessary time to process the requisite number of claims grew to be ten, eleven, twelve and sometimes even more hours per day. More importantly, the Company and their parent company continually directed and dictated the means and method by which the various claims had to be processed.

The claim processors frequently sought some relief or consession from the Company, but the company was both unsympathetic and unyielding in its strict adherance to contract terms. Also included in the Independent Contractor Agreement was an audit provision by which the Company could audit the claim processing work of the women and dock them compensation for errors which it asserted it found. Although audits were infrequent, the audit procedure was utilized as a threat to keep the claim processors from making waves. Another onerous contract provision was a hold harmless and indemnification agreement whereby the claim processors agreed to hold the Company harmless and indemnify the Company for any and all liability from any acts, errors or omissions committed by them.

Although the claim processors were allegedly in business for themselves, the contract limited their ability to work for any other insurance company by requiring them to notify the Company at any time that they processed claims for another insurance company and reserving the right to terminate the Agreement should the Company determined that a conflict of interest existed. The women never worked for any other company. They were only able to complete their required production by working an extended number of hours for the Company. It was not even possible for the women to consider working for another insurance company, since they had more than they could handle working for the Company.

The matter finally came to head when the company presented the claim processors with a new Independent Contractor Agreement which was even more onerous than the original one and demanded that the claim processors execute the new Agreement within two weeks. The new Independent Contractor Agreement required the processing of 400 claims a week and required the claim processors to secure a business license. After consultation with legal counsel and legal counsel's discussion with the Company's legal department, the Company said that the women could either work under the old existing contract or could accept the new contract which did provide for a slight increase in per claim compensation, but that the Company would not give any ground on the objectionable provisions of the contract.

The women had had all they were going to take and adopted the battle cry from a popular motion picture, "We're mad as Hell and we're not going to take it any more." The eight women who

are the plaintiffs in the subject lawsuit, informed the company of their position and quit their jobs on December 1, 1985, thereby forfeiting their employment. They immediately sought and were granted unemployment benefits from the California Employment Development Department, the state agency in charge of administering unemployment benefits.

The lawsuit which followed is predicated upon the position that the women were, in fact, employees and not independent contractors and thereby were and are entitled to receive the employee and fringe benefits commensurate with their employment. The complaint seeks the recovery of the employee and fringe benefits which they were denied by virtue of the Company classifying and treating them as independent contractors as well as the reimbursement of the additional social security taxes which they had to pay by virtue of alleged independent contractor's status.

ARGUMENT

The key issue to be determined in the lawsuit is whether or not the home workers are employees or independent contractors. Such determination can only be made by an application of the facts to the applicable statutory and case law.

The statutory authority in California for determining the appropriate work-related status is found in Section 601 of the California Unemployment Insurance Code, and Sections 3351 and 3353 of the California Labor Code.

Section 601 of the California Unemployment Insurance Code provides:

> "Employment, means service, including service in interstate commerce, performed for wages or under any contract of hire, written or oral, express or implied."

Section 3351 of the California Labor Code defines an employee as:

> "Employee means every person in the service of an employer under any appointment or contract of hire or apprenticeship, express or implied, oral or written, whether lawfully or unlawfully employed, ..."

And Section 3353 of the California Labor Code defines an independent contractor as:

> "Independent contractor means any person who renders service for a specified recompense for a specified result, under the control of his principal as to the result of his work only and not as to the means by which such result is accomplished.

The leading California case law in the area is the California Supreme Court case of Empire Star Mine Company Ltd. v. California Employment Commission (1946), 28 Cal. 2d 33, 168 P. 2d 686, the court summarized the rules for determining the existence of either an employer-employee or principal-independent contractor relationship as follows:

> "...In determining whether one who performs services for another is an employee or an independent contractor, the most important factor is the right to control the manner and means of accomplishing the result desired. If the employer has the authority to exercise complete control, whether or not that right is exercised with respect to all details, an employer-employee relationship exists. Strong evidence in support of an employment relationship is the right to discharge at will, without cause. [Citations omitted] Other factors to be taken into consideration are (a) whether or not the one performing services is engaged in a distinct occupation or business; (b) the kind of occupation, with reference to whether, in the locality, the work is usually done under the direction of the principal or by a specialist without

> supervision; (c) the skill required in the particular occupation; (d) whether the principal or the workman supplies the instrumentalities, tools and the place of work for the person doing the work; (e) the length of time for which the services are to be performed; (f) the method of payment, whether by the time or by the job; (g) whether or not the work is a part of the regular business of the principal; and (h) whether or not the parties believe they are creating the relationship of employer-employee." (Rest., Agency 220; Cal. Ann. Section 220.)

There is abundant judicial authority that the most important factor to consider is the extent to which a principal has retained the right to control a workperson's manner, mode, method and means of performing the details of their work. To be indicative of an employment relationship, the right to control must be of that type and degree which the courts have characterized as "complete" and "authoritative." The test involves the existence of such a right as distinguished from its exercise.

In evaluating a working relationship due consideration must also be given to the secondary factors relating to the background under which the services were rendered. A determination of status must be reached from the overall integrated picture of the relationship that is found by considering its overall component parts. This is the standard set down by Section 220 of the Restatement of Agency, cited by the court in Empire Star Mines.

The present case is concerned with the application of the law to persons performing industrial work in their own homes for others. On the question of whether such homeworkers are to be regarded as employees or as independent contractors, the courts

have been somewhat divided, principally because of a difference of opinion as to whether the terms "employer," "employee" and "employment" as defined and used in the various statutes are to be given the same construction that they are given by the common law in cases involving the relationship of master and servant.

In the Federal area, the 4th Circuit case of McComb v. Homemakers Handicraft Cooperative (1949), 176 F. 2d 633, Cert. den. 338 U.S. 900, 94 L. Ed. 553, 70 S. Ct. 250, the court held that homeworkers were employees and not independent contractors. In the McComb case, the defendant, a cooperative paid by bag manufacturers and composed of homeworkers, distributed to these homeworkers bags owned by the manufacturers for insertion of draw strings. The homeworkers were paid on a piece work basis. In holding that the homeworkers therein involved were employees under the Fair Labor Standards Act the court stated:

> "As to the status of the homeworkers, we think it perfectly clear that, under common law concepts, they are employees and not independent contractors....the law of independent contractors has an important place in the law, but surely it was never intended to apply to humble employees of this sort."

However, the court went on and stated:

> "Whether or not the homeworkers are employees within the meaning of the Fair Labor Standards Act, however, is to be determined, not by common law concepts, but by a consideration of the purpose which Congress had in mind in the passage of the act, which defines 'employ' as including 'to suffer or permit to work'. 52 Stat. 1060, 29 U.S.C.A Section 201, sec. 3. This definition of employment has been called by Senator, now Mr. Justice Black the 'broadest definition that has ever been included in any one act'. 81 Cong. Rec. 7659; United States v. Rosenwasser, 323 U.S. 360, 362, 65 S.Ct. 295,

> 89 L.Ed. 301. 'The motive and purpose' of the legislation, as said by the Supreme Court in United States v. Darby, 312 U.S. 100, 115, 61 S.Ct. 451, 457, 85 L.Ed. 609, 132 A.L.R. 1430, are 'plainly to make effective the Congressional conception of public policy that interstate commerce should not be made the instrument of competition in the distribution of goods produced under substandard labor conditions * * *'. As pointed out in a later case, 'The statute was a recognition of the fact that due to the unequal bargaining power as between employer and employee, certain segments of the population required federal compulsory legislation to prevent private contracts on their part which endangered national health and efficiency and as a result the free movement of goods in interstate commerce. To accomplish this purpose standards of minimum wages and maximum hours were provided.' Brooklyn Saving Bank v. O'Neil, 324 U.S. 697, 706-707, 65 S.Ct. 895, 902, 89 L.Ed. 1296. Such being the purpose of the statute, common law rules as to distinctions between servants and independent contractors throw but little light on who are to be deemed employees within its meaning. This was clearly stated by the Supreme Court in National Labor Relations Board v. Hearst Publications, 322 U.S. 111, 64 S.Ct. 851, 855, 88 L.Ed. 1170, brought under the National Labor Relations Act, 29 U.S.C.A. Section 151 et seq., a companion piece of legislation ...." (emphasis added)

However, it could be argued that the McComb case was only concerned with coverage provisions of the Fair Labor Standards Act with respect to the homeworkers therein involved, and concluded that the controlling factor in deciding the issue was the broad statutory definition of "employ" under that Act ("Employ" includes to suffer or permit to work--29 U.S.C.A. Section 203(g)) and hence the case merely reflects that in the court's opinion it was the intention of Congress for the purposes of the Fair Labor Standards Act to treat homeworkers as any other type of employee, regardless of their common law status.

Perhaps the controlling case concerning the status of homeworkers under common law should be the case of Glenn v. Beard (6th Circuit, 1944), 141 F. 2d 376, Cert. den. by U.S.S.C. on October 9, 1944, 323 U.S. 724, 89 L. Ed. 582, 65 S. Ct. 57. In the Glenn case the question presented was whether the workers in question were independent contractors exempt from the provisions of the Social Security Act or whether they were employees subject to the Act. The alleged employer engaged women to make comforters, quilts, and similar articles. The women did their work at home on farms. The homeworkers were supplied material stamped with designs and specifications for the work. The material and thread, together with instructions, were delivered to the worker at the time of the signing of the contract. The contract provided that the homeworker will work the material according to the specifications; that the work may be done at such times--within a designated period--and at such places as are agreeable to the workers; and, that further, the worker may do the work personally or by agents of her selection. The contract also provided that upon completion of the specified work and its delivery to the alleged employer, a certain price will be paid to the worker. There was no supervision of the work and no calls were made by the employer at the homes of the workers to inspect the work. The homeworkers worked when they wanted to and at such times in the year as their farm duties permitted them. In that case the court stated as follows in holding that the homeworkers were independent contractors and not employees:

> "...Employment under this statute is to be understood in its ordinary sense, as meaning the legal relationship of employer and employee; and this conclusion is fortified by the applicable regulations of the Commissioner of Internal Revenue, which sets forth that 'the relationship between the individual who performs such services and the person for whom such services are rendered must, as to those services, be the legal relationship of employer and employee.* * * The words "employ," "employer," and "employee," as used in this article, are to be taken in their ordinary meaning. * * * Individuals performing services as independent contractors are not employees.' Treasury Regulation No. 90, Art. 205, promulgated under Title IX of the Social Security Act."

In the case at hand against the Company, the homeworkers were engaged in the processing of health insurance claims under insurance policies; an essential ingredient in the payment of claims in the insurance business. Although supervisors did not come to the processors' homes, there was constant supervision and direction given to the women as to the means and methods to be employed in the processing of health insurance claims. This was accomplished through office memos and telephone direction. There were constant and continual deadlines to meet, and although the workers had some flexibility in when they worked, they had to work when the system was operating which was generally sixteen hours a day, five days a week. The homeworker had to pick up and return claim files on a weekly basis and were not allowed the flexibility or discretion to complete them at their own pace. The homeworkers were paid only for complete work, but such compensation was fairly uniform by virtue of the number of claims they were required to process each week. The homeworkers were not licensed by any State, County or City agency and none of

the homeworkers engaged in the processing of claims for other insurance companies or engaged in other types of work for renumeration at home. The homeworkers did not consider themselves as independent contractors and saw little difference in their job descriptions and responsibilities from the years which they had processed claims in the Company headquarters.

There is ample evidence of numerous and repeated demands being made upon these workers. Furthermore, the Company reserved the right to discharge the homeworker at will with a thirty day notice and supplied the homeworker with their home terminal (at a nominal monthly fee) and connected it to the Company's data base. An additional point of significance, is that each of the processors involved, had worked in the Company's office for an extended period of time before becoming homeworkers. I believe that considering these facts the overall picture which emerges indicates that the homeworkers in this case were clearly employees and not independent contractors and thus are entitled to the employee and fringe benefits which they earned as employees.

CONCLUSION

With the advent of the home computer and home terminal, the development of telecommunicating is a wave of the future and there is without question, in my opinion, many advantages to both employers and employees in homeworking in businesses and industries which lend themselves to this mode of operation. However, the utilization of homeworkers with computer terminals must not be allowed to become a subterfuge enabling employers to

escape contribution to unemployment insurance, social security, group and welfare plans and retirement plans. Naturally, there are and will be individuals who will legitimately engage in businesses operated at home. These are the true independent contractors who, by choice, are in business for themselves and contract with others for the end product of their efforts. However, it is important to distinguish between the two and for the applicable law to prevent the abuses exemplified by the case at hand.

Respectfully submitted,

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